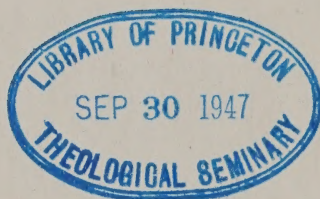


BR
100
.M53
1947



BR 100 .M53 1947
Miller, Carl Wallace, 1893-
A scientist's approach to
religion

A SCIENTIST'S APPROACH TO RELIGION



THE MACMILLAN COMPANY

NEW YORK • BOSTON • CHICAGO
DALLAS • ATLANTA • SAN FRANCISCO

MACMILLAN AND CO., LIMITED

LONDON • BOMBAY • CALCUTTA
MADRAS • MELBOURNE

**THE MACMILLAN COMPANY
OF CANADA, LIMITED**

TORONTO

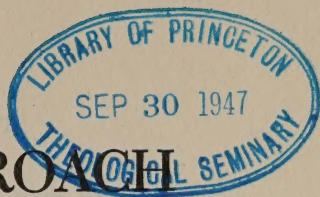
A
SCIENTIST'S APPROACH
TO
RELIGION

BY
Carl Wallace Miller

*Professor of Physics
Brown University*

THE MACMILLAN COMPANY · *New York*

1947



Copyright, 1947, by
THE MACMILLAN COMPANY

All rights reserved—no part of this book may be reproduced in any form without permission in writing from the publisher, except by a reviewer who wishes to quote brief passages in connection with a review written for inclusion in magazine or newspaper.

First Printing

PRINTED IN THE UNITED STATES OF AMERICA
BY THE VAIL-BALLOU PRESS, INC., BINGHAMTON, N. Y.

PREFACE

THE fruitfulness of religion as an agency for human progress depends on its own ability to meet the changing needs of each new generation. Science can be expected to care for our material requirements, but it has always been the function of religion to minister to man's spiritual aspirations. In the past it has furnished him with a philosophy of life by which to live effectively and not unhappily despite inevitable adversity. It is still doing this for multitudes of people, but for many its message is obscured by the language of a by-gone era. If the jargon of science is just as unintelligible to most people, it is still able to sell itself by the impressiveness of its product. When, however, a community is well served by individuals who are animated by deeply religious motives, the contribution made by religion is not so universally recognized. Yet the part which a vital philosophy of life plays in inspiring men to lives of service should not be overlooked.

There can be no doubt that people today by and large devote less thought to religion than in most earlier periods of our history. They are less familiar with the deeper meanings associated with religious concepts; and when they see apparent conflict between traditional ideas and modern thought, they are prone to ac-

cept without struggle a progressive impoverishment of their spiritual heritage.

The present book is an effort to restate the essentials of Christian thinking for the benefit of those who feel the need to appraise the extent of the conflict between tradition and modern knowledge. The early chapters deal with the concept of God and the essential dignity of the human personality. Other chapters approach some of the traditional affirmations of the Christian faith from the standpoint of their abiding spiritual content. There is no intention to formulate a system of theology, but rather to suggest for the reader a method of approach in his task of appropriating for himself the basic truths which are present in this ancient body of doctrine. The concluding chapters relate to the tasks which face the Church as it seeks to minister to the needs of the modern world.

Many people will wish to go much further in emphasizing the supernatural aspects of religion than is done in the following pages. To the reverent scientist, however, the simplest features of the world about us are in themselves so awe-inspiring that there seems no need to seek new and greater miracles as evidences of God's care. The truly vital feature of religion is the profound meaning which it attaches to life and the demand which it places on our loyalties and affections.

CONTENTS

	PAGE
PREFACE	V
CHAPTER	
I INTRODUCTION	I
II THE CONCEPT OF GOD	6
III BELIEF IN GOD	15
IV FAITH IN GOD	21
V LOVE FOR GOD	27
VI LOVE FOR NEIGHBOR	33
VII THEOLOGY	39
VIII THE TRINITY	44
IX SIN	52
X THE CROSS	60
XI IN REMEMBRANCE OF ME	69
XII DETERMINISM AND FREE WILL	75
XIII GOOD AND EVIL	84
XIV PRAYER	94
XV ETERNAL LIFE	100
XVI CHRISTIANITY AND THE GOOD ECONOMY	105
XVII CHRISTIANITY AND DEMOCRACY	112
XVIII CHRISTIANITY AND EDUCATION	117
XIX THE CHURCH	123

CHAPTER I

INTRODUCTION

INDIVIDUALS who were born in the nineteenth century and have lived through the cataclysmic events of the twentieth have been forced to reorient their thinking to an extent that has probably never before been the lot of a single generation. The half-century of almost unbroken peace following the Civil War had been devoted in America to the creation of a material civilization which carried with it an unprecedented well-being for the masses of the people. The causes underlying this favorable growth were manifold: great natural resources, scientific and industrial research, broad general education, opportunity for the individual, not too greatly hampered by social position, and finally the idealism associated with the American brand of Christianity.

To those of us who passed through the public schools in the first decade of the twentieth century the future indeed seemed good. As we parsed our Latin sentences and dreamed of classic civilizations, who among us guessed that our generation was destined to fight sanguinary battles in France, or that our sons would one day bleed and die on Italian soil? Much has been said and written regarding the structural faults of our nine-

teenth-century utopia, of the shoddy material that was woven into its outwardly impressive fabric; but despite its weaknesses it was a happier era than humanity had previously experienced, and its failure to move on to the anticipated fruition must be ranked as one of history's great tragedies. There are those today who would cling nostalgically to old formulas for advancing the cause of humanity and who would place the blame for failure on a generation too feeble to build constructively on foundations already laid. More venturesome souls would seek new formulas and new paths in search of a happier destiny. Still others recognize the need for change, but feel that much can be salvaged from the wreck of the past. Precious crystals can be tenderly transplanted to the swirling matrix of the new world, there to grow and lend their form to new institutions. Nineteenth-century society boasted of the fact that but three generations separated shirtsleeves from shirt-sleeves. It was a symbol of the opportunity which a vigorous young society had to offer to all its members. Such a pattern has, however, less to recommend it in the realm of spiritual and intellectual values. That one generation should give of its blood and sweat for the discovery and recognition of spiritual values only to have them passively accepted by the next generation and ignored by the succeeding one, is no compliment to human intelligence. True, some of these heirlooms may prove with time to be gilded baubles, but others of great intrinsic worth are likely to be lost in the dust stirred up by the marching legions of progress. Material assets can be passed on intact by society from one

era to the next, but spiritual and intellectual values have to be recaptured by each individual for himself in his short journey from the cradle to the grave.

Perhaps the most noteworthy change in the human picture during the past century and a half has been the phenomenal expansion of man's knowledge. It was possible for Thomas Young to be conversant with substantially all branches of the wisdom of his day, but as the stockpile of knowledge has pyramided, the fraction accessible to the most indefatigable efforts of any one individual has become appallingly small. Any thorough exploration of one part of our intellectual heritage precludes a more than cursory acquaintance with vast segments of the top-heavy structure. Is it any wonder that a general should now and then be guilty of an ethical blunder, or that a minister of the gospel should give birth to a scientific monstrosity? Days such as these call for more humility and tolerance than is commonly encountered even in academic circles.

The intellectual climate itself has altered in such a manner as to jeopardize the preservation of ancient values. In an age when civilization advanced on foot or on the backs of camels, when knowledge was accumulated infinitely slowly, each grain was prized, and the books which became the repository of these treasures were valued beyond measure. The discovery of the scientific method in the seventeenth century, however, provided mankind with a tool for unearthing new information at such a dizzy rate that he has never since been able to take a satisfactory inventory. What is more to the point, we have become so impressed with

the power of our new tool that it has been a sore temptation to apply it to all our problems and to ignore the wisdom which has been so laboriously accumulated through the ages. For three hundred years the streams of science and classicism have flowed down the pages of history together, but only in our own time has scientific knowledge by its sheer volume threatened to engulf the abstract and elusive values inherited from a more leisurely past. This has been no dark plot engineered by scientists, for by and large the greatest contributors to our scientific treasury have been men of unusual tolerance and insight. What then is the cause of the turbulent water where the streams of science and man's spiritual aspirations meet? May it not be our failure in these modern days to understand the imagery or even the terminology in which traditional values are so often expressed? Eminently fitted to the ideology of a pre-scientific age, they can be made to fit into the framework of present-day life only at the cost of an apprenticeship which too few in this modern world seem able to afford.

There are still in the present generation, however, individuals who were so trained in childhood that the words of Greek poet and Hebrew psalmist retain much of their ancient connotation, but who in later life have learned the trade of the scientist. Some have sought to segregate these two cultures into separate compartments of their consciousness, vaguely thinking of one as the realm of scientific fact and the other as the realm of values. The possibility of such segregation may, however, be questioned, and it may well be that either

they must be integrated into a single coherent Christian culture with all that it has to offer for the future of human society, or humanity must turn its feet along the unknown path of pure secularism.

CHAPTER II

THE CONCEPT OF GOD

BOTH Christian and Jewish cultures are centered about the concept of God. "Seek ye the Lord and live"; "Our Father which art in Heaven"; are such familiar phrases that we too often overlook the vagueness of the idea of God in the minds of most of us. We do not learn the meaning of a word by memorizing a definition. It gradually acquires meaning only as it is used by writers, and its exact flavor is sensed only as it is repeatedly encountered in its proper literary setting. No person is competent to say that he does or does not believe in God if he cannot use the word without embarrassment. It may be objected that even Christian literature fails to provide a satisfying or universally acceptable portrait of this most basic of all concepts in religion. Religious literature like every other segment of human culture has its "lunatic fringe," but like art and secular literature it has its Rembrandts and Shakespeares. It is to the great lawgivers and prophets of Israel, to Jesus and St. Paul, and to modern interpreters of this great backlog of religious material that we must go if the true significance of theism is to seep into our consciousness and we are to use the word God intelligently.

If it is true that the average American of the present

day is woefully ignorant of this great literature and so, inevitably, has only a vague and childlike notion of the word God, it is just as regrettably true that the non-professional scientist, unfamiliar with the work of Newton, Darwin, and Einstein, has just as vague a notion of the nature of our scientific thought. The professional theologian can no more be condemned for speaking with "tongues" than the scientist from his laboratory. There is a general but erroneous impression that the function of teacher and scholar is to expose each generation to the accumulated knowledge of the past. Actually his proper function in modern society is to sift and reinterpret the old, to appraise the new, and to bring the best of each into a single body of thought compact and lucid enough to serve a new and bewildered generation. This is no small task, and only a highly prejudiced individual would be willing to exonerate our present-day scholars from some part of the blame for humanity's present estate. The conservatism and self-interest of the theologian must share responsibility with the self-centeredness and provincialism of the scientist.

It is a common misconception that the great body of scientific knowledge rests on a firm foundation of solidly established laboratory experiment and is tightly bound together by inexorable principles of logic. Starting with this misconception, the man on the street often argues that science alone must be the ultimate source of all true knowledge, and looks with a fishy eye at the pronouncements of prophet, poet, and sage. The honest scientist recognizes the fallacy of this position, but he may be too flattered by its implications or too

much immersed in his own particular task to protest. The theologian, on the other hand, is too often content to stake claim to his own segment of wisdom, "the realm of values," and to warn off all intruders. It is probably true that from Newton and Laplace to Einstein and Planck science did seek and confidently hoped to gain from its methods a thorough-going understanding of human environment. Twentieth-century science has not merely cast doubts on the possibility of attaining this goal; it has actually discovered great fundamental principles¹ which in considerable measure forbid it. The scientific method, though the most powerful tool which mankind has found for unlocking the secrets of nature, is not all-powerful. It carries us just far enough in our understanding to make available for our use unimagined natural resources, but whenever we climb to a peak on the boundary of our knowledge, we find spread out before us a land of mystery and adventure. For every head that our blade lops from the dragon of ignorance, a hundred more are found in its stead.

Although the scientific method is not destined to achieve all that was hoped from it, it is still profitable even for a theologian to examine into its nature. He will find that it has elements which are gratifyingly familiar to the humanist. Laboratory experiment by itself is confusingly ineffective. It must be supported by concepts and guided by theories. Some of the concepts which have been advanced in the rearing of our scientific structure have been simple, naive, and closely re-

¹ The relativity and indeterminacy principles.

lated to everyday experience. The idea of a molecule as a hard, perfectly elastic, spherical object has been useful in correlating many of the properties of a gas; but the most powerful concepts, advanced during the nineteenth and twentieth centuries, are almost incredibly artificial and abstract. To take a very simple example, the idea of energy, stemming rather obscurely from the old mathematical *vis viva* and emerging about the middle of the nineteenth century with the researches of Joule, has been gradually expanding and gathering content for a full century. As a consequence, it must be approached and explored from many different angles before its full significance can be appreciated. It reminds one of a great mountain which presents a particular contour when approached from one direction but an entirely different aspect from another. Only as we live in the many little valleys that nestle into its flanks and as we climb through its ravines and over its ridges, can we truly say that we know the mountain. So only after long study and constant use does the full significance of energy seep into one's consciousness. The evolution of this concept was guided by the nature of the contribution which it made to a wide variety of problems.

In particular, the discovery of the mysterious law governing its conservation had much to do with its development. Only because it proved to be a useful concept, correlating the results of experiment and suggesting new investigations, has it been retained in the body of present-day science. The idea of a luminiferous ether, invented to visualize the propagation of light,

proved scientifically barren, and has fallen into disuse. Electric potential, entropy, and the wave-mechanical functions of Schroedinger are examples of concepts which have brilliantly justified their adoption, and have probably found permanent places in our scientific thought.

In the realm of spiritual values the idea of God would appear to be a similar concept. Originating in the remote past among primitive peoples, it began to take on its present Christian significance in the utterances of the ancient Hebrew lawgivers and prophets. Just as energy became significant in scientific thought only with the recognition of the extraordinary law governing its conservation, so the idea of God took on more than superstitious content only when it became associated with the existence of a moral and ethical core in the universe. No one has ever been able to prove the Law of the Conservation of Energy. It has been accepted as basic scientific doctrine only because it was found in accord with all scientific experience. Similarly no one has been able to demonstrate the existence of moral law, but it has appealed to the noblest segments of the human spirit, and has been written into the pages of man's experience from Sodom to Tokio. There are physical laws which govern a man's relation to his physical environment, and there would appear to be moral laws which govern his associations with his fellows. To thoughtful people the contemplation of this great structure of fundamental law can scarcely fail to arouse a sense of wonder and awe. It speaks to us of mighty primeval forces in the presence of which man is but a

little child. It is no accident that great scientists as well as great poets and sages have so often been men of humility and reverence. It is the less thoughtful person who has never faced the sublimity of universal law who can say in his heart, "There is no God."

This is not to deny the existence in traditional religious thinking of much that is unintelligible to thoughtful moderns. Just as scientists have not infrequently constructed elaborate theories from their own imaginations, so religious enthusiasts have at times given free rein to invention, and have often sought to attribute the results to divine inspiration. The true scientist, however, is cautious about decorating his concept with irrelevant details. He includes just so much as appears to be required for maximum utility. Similarly we would do well not to embellish the concept of God with hypothetical details which can only damage its practical value as an anchor to our spiritual lives. The age-old surmise that comes down to us from the dawn of civilization, that God created man in his own image, must not be twisted into assurance that God possesses human form or personality in the ordinary sense of the word any more than it should be used to endow the divine being with all of our human traits and vices. The repugnance of the Hebrew sages to any sculptured representation of deity is evidence enough that they shrank from such a literal interpretation. The insights which have come down to us in the book of Genesis should rather be taken as an assurance of the capacity of man to understand in some measure the cosmic grandeur of the divine creation. It is similar assurance

that when we discover in ourselves or our fellows ideas or ideals which we recognize as worthy or noble, they may be reverently accepted as perhaps imperfect but nevertheless valid reflections of the true character of the divine being.

Thus as age followed age, as great souls acquired new insights, the concept of God took on new richness and significance. Listen to the prophet Micah. "—what doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God?" Listen to Jesus. "Be not anxious, saying, What shall we eat? or, What shall we drink? or Wherewithal shall we be clothed?—for your heavenly Father knoweth that ye have need of all these things." Or listen to St. Paul. "And now abideth faith, hope, and love." These attributes of justice, mercy, and fatherly love, man found first in his own heart. He recognized them as good, and reverently accepted them as divine attributes. If the noblest qualities in man are but reflections of the divine creator, so the creative achievements which emerge from man as he is animated by these qualities may be thought of as God's gifts, transmitted through the medium of the human spirit. A Beethoven sonata, a poem of Keats, a scientific insight, a Raphael madonna, all may be thankfully recognized as of divine origin. No one who has had the privilege of performing such a creative act even at a very modest level can fail to be impressed with the mystery of the experience. To him there is nothing fantastic in ascribing it to an all-embracing Providence that broods over mankind. This conception of God and his relation to humanity is the

solid core about which all great religious faith is built. We can follow its growth and its impact on society over three thousand years. Can we afford to abandon it for new adventures?

There are few who would care to deny the plausibility of this conception of God. It may, however, be legitimately asked whether we are not thus creating God in our own image and so reversing the conventional approach to the idea of deity. This objection is strongly suggestive of a controversy which one not infrequently encounters in scientific circles. Most scientific investigators think of themselves as explorers pushing out into the vast unknown of natural phenomena. The fruit of their labors is a wider knowledge of the world in which we live. Atoms and molecules with their amazing properties and potentialities were always about us, requiring only patience and industry to discover their secrets and apply them to our needs and desires. There are other scientists who prefer to think of such fascinating entities as mere figments of our imagination. These constructs, created by human genius into an imaginary world, follow laws which we have invented for the purpose, and mimic, like tiny puppets, the behavior of the more inaccessible world of reality. From this viewpoint our modern physics, chemistry, astronomy, and biology constitute a vast artificial structure which yields little if any real information about the nature of the true universe. That this argument cannot be finally settled is further evidence of the limitations of the scientific method, but that it is not aired more frequently in public is a consequence of the

conviction that it really makes little difference. Whether construct or reality, our scientific structure is capable of ministering admirably to the needs of humanity.

So also the important thing in the realm of spiritual values is man's profound obligation to pursue through life that which is good and true. If this sense of obligation springs from his own genius, there are few who would not designate it as one of the noblest of all human inventions. It is, however, an indubitable fact that the greatest contributors to our moral and ethical tradition have thought of their task as a sort of Pilgrim's Progress toward a better understanding of divine Providence. I well remember a conversation with an eminent author whose vision of God had grown dim, and who felt that theism was destined for eclipse in a scientific society. In lieu of the traditional belief in God, he felt that we must substitute a moral code, but was far from optimistic regarding its effectiveness. If mankind has made such slow progress toward true civilization with all the inspiration of his noblest religious teachers, what indeed would be his progress under a code? Given two alternative hypotheses of equal likelihood, science would always select that which promised to be most fruitful. Can we question the benefits which have accrued to humanity from a sincere belief in divine Providence? May we not still set our course by the stars?

CHAPTER III

BELIEF IN GOD

SCIENTIFIC concepts, such as energy, are devised and selected primarily to facilitate the correlation of our knowledge. This unifying process ordinarily results from the recognition of basic "principles" in the expression of which the concepts are utilized. Thus the idea of energy was evolved to make possible the inclusion of much scientific knowledge in a single statement, the Law of the Conservation of Energy. This law is meaningless without a clear idea of the significance of energy. The concept of energy, on the other hand, has gradually expanded under the guidance of the law governing its conservation. Late in the nineteenth century the nature of heat as a form of energy and the relationship between heat and mechanical energy had been so far clarified that the energy principle constituted the very foundation of engineering and chemistry. The discovery of radioactivity, however, posed an entirely new problem. The ability of radioactive materials to evolve heat in a continuous fashion without any apparent loss of energy in other known forms appeared to be in conflict with the fundamental law of conservation. Only by postulating the existence of almost incredible amounts of energy within the atom itself was it possible

to maintain the validity of the principle. Yet the recognition of atomic energy, accepted at this time as an alternative to abandoning a principle which had already proven its utility, served as a springboard for new investigations in the realm of the atom which for sheer fruitfulness have never been equalled in scientific experience.

Associated with the idea of God, Christianity has recognized certain basic principles, which while constituting the foundations of religion, serve also to clarify the concept of God. Just as a thoroughgoing understanding of energy necessitates a familiarity with great segments of modern physics, so a proper appreciation of what the Christian means by God calls for an understanding of these Christian principles. I recall my own experience when confronted for the first time with Newton's First Law of Motion, the fact that a body in motion will continue in motion forever unless acted on by an outside force. This statement was to me so obviously contrary to experience that many weeks of struggle were required before I was able to accept this fragment of scientific truth. By their very nature scientific principles are never amenable to complete demonstration by logical processes. They are accepted only when familiarity with their fields of application convince one that they are in accord with experience. Similarly only by a thorough familiarity with basic religious principles and their bearing on the concept of God can an individual arrive at a clear idea of God or the validity of the principles themselves. The most fundamental of these principles are related to the meaning

of "belief in God," "faith in God," and "love for neighbor."

Belief in God in the Christian sense is not superstition. God, to the modern Christian, is not a genie from the Arabian Nights who can be persuaded to render particular service to one who knows the password. Stripped of confusing details, belief in God is acceptance of the basic principle that the universe makes sense, that there is behind it an ultimate purpose. If an individual can believe that he entered by chance into a world which was itself assembled by chance, without cause or ultimate objective, then he does not need to believe in God. If he believes that his own life has meaning above and beyond his own selfish interests, if he believes that the world about him has ultimate significance, he can afford to ask if that meaning does not constitute the true nucleus of the traditional concept of God. It is not the purpose of the present discussion to argue that the atheistical viewpoint is untenable; for as with strictly scientific principles, it does not seem likely that such a conclusion can be reached by logical processes.

Ever since man began by his scientific methods to study the physical world about him he has been impressed by the beauty and orderliness of his discoveries. From the majesty and scope of the stellar universe to the breathtaking symmetry and variety of the snowflake and the intricate perfection of atomic structure man has learned to expect great complexity indeed, but nevertheless law and order. New discoveries, dovetailing with the old, give gratifying assurance that he is

little by little unravelling some great cosmic pattern. To speculate that this pattern is the handiwork of a divine architect, seems a natural instinct in man. From the remotest past come the words of the Psalmist, "When I consider the heavens, the work of Thy fingers, the moon and the stars which Thou hast ordained, what is man that Thou art mindful of him?" Forced by the nature of his tasks to become more practiced in abstract thinking than his ancient prototype, the modern scientist is likely to reject the temptation to fill in the picture of this divine creator with his imagination, and to seek more solid if more abstract properties with which to endow his concept. He may be forgiven, however, for the conviction that such majestic orderliness and beauty are not just the products of "boondoggling." They speak of some infinite purpose which constitutes at the same time the secret and the mystery of the universe. Belief in this cosmic purpose is what the scientifically trained modern means when he says that he believes in God.

A scientific concept is not accepted simply because it seems plausible or even because it appears to be in accord with experience. It must satisfy also the criterion of fruitfulness. It must not merely fit neatly into the niche for which it was conceived; it must suggest new fields for scientific adventure, and when these fields have been explored, must still be found applicable. It must ever serve as a source of new inspiration, a tool for new discoveries. The acceptance or non-acceptance of the principle of cosmic purpose as a guide to human activities must be decided in the final analysis by its

promise of fruitfulness. It will be argued in a later chapter that moral law is such an indispensable component in the fabric of human society that humanity can prosper only as it lives in accordance with that law. If this premise is accepted, it may still be argued that man could learn to order his affairs in accordance with these recognized principles even though he failed to see in them the mark of divine purpose. Few would deny, however, that the education of humanity to that estate would be vastly facilitated if individuals could think of themselves as playing a part in some great cosmic program of a significance that far transcended their own selfish experience. This at any rate is the conviction which lies at the heart of all great religions. It is the stuff from which saints and martyrs have been spawned since the dawn of history. It would appear to be the surest guarantee of human progress in the generations to come.

Belief in God involves far more than the uncritical acceptance of a medieval concept which one lacks the intellectual vigor to reject. A scientist may passively accept the statement of a fundamental principle, but unless he organizes his thinking and his program of research in accordance with its implications, his belief will be barren of practical consequences. So, too, the idea that virtue in some way attaches to a mere avowal of religious belief is crass self-delusion. If an individual truly believes in the cosmic significance of this great terrestrial enterprise, if he sees in it the mark of divine purpose, the approach which he will make to his own personal problems and those of society can scarcely fail

to be influenced. Belief in God, stripped of this catalyzing effect on human relations, could carry with it no ethical or moral significance. With this vital property it becomes a creative force for advancing the cause of humanity.

CHAPTER IV

FAITH IN GOD

THE second basic principle of the Christian faith relates to the fundamental beneficence of the great cosmic purpose. Other religious forms may place emphasis on the necessity for appeasing an amoral deity; Christianity rests its hope on a loving Father. Thus in the words of the Psalmist: "Though I walk through the valley of the shadow of death, I will fear no evil.—Surely goodness and mercy shall follow me all the days of my life." Jesus assures us that "My yoke is easy, and my burden is light," and St. Paul expresses the confidence that "All things work together for good to those who love the Lord." It has often been argued that such assurance is wishful thinking, that in reality our lot is cast in a harsh world where a measure of happiness and prosperity can be attained only by constant struggle against the natural forces arrayed against us. We are still tempted to echo the complaint of the unfaithful servant in the Parable of Talents, "I knew thee that thou art an hard man, reaping where thou hast not sown—"

The hard estate of humanity was never ignored in traditional Christianity, but the hope was vouchsafed for a better fate in some future life. How else could the

thesis of divine beneficence be maintained in a world which was being constantly ravaged by famine, plague, and unrestrained human passion? Only in comparatively recent years has it become possible to place a new interpretation on the principle of divine beneficence. According to the ancient Hebrew tradition, as recorded in the book of Genesis, God commanded Adam to go out and subdue the world which He had created. This may well be viewed as the great charter of human progress. At first primitive man gained only a precarious existence from hunting and fishing, but as ages passed he learned to domesticate wild animals and to till the soil. He learned to use fire for warmth and cooking and then for the creation of mechanical power to perform his ever more grandiose tasks. He learned the principles of mechanics, and began to understand and utilize the electrical and optical resources of his physical environment. With the invention of the microscope he became aware of the micro-organisms which had played such appalling havoc with man's life and fortunes through all the ages. Led on by the brilliant insight and discoveries of Pasteur, he began to evolve from this microscopic world means for his own protection against disease.

It cannot be too strongly emphasized that all these resources were present in the environment of primitive man, but were uncovered only by eons of patient study and research. Who can doubt that countless similar discoveries are yet to be made, and that much which is harsh in present-day life can be softened by the utilization of nature's still hidden mysteries? There is no in-

tention to argue that we can even yet resolve all the problems which are presented by the more forbidding aspects of man's environment. After nineteen hundred years we can still repeat the words of St. Paul, "Now we see through a glass darkly," but we have far more reason for faith in the great divine purpose than our forefathers could possibly have had.

One of the most striking features of modern scientific thought has been the emphasis placed on the strict conservation by nature of those elements which make up our physical environment. The list is impressive: energy, momentum, matter, electric charge; all seem to be guarded by nature with the utmost jealousy. True, our understanding of the exact character of this conservation has had to undergo change. The insight gained recently from relativity and corroborated by nuclear physics has led us to unite the principle of the conservation of mass with that of energy into a single super-conservation of mass and energy. A particle of matter may disappear, but only if an equivalent amount of energy in some other form appears to take its place. Mass and energy together are thus conserved in accordance with one of the most precise laws of which we have any knowledge. So impressive, indeed, are these great conservation laws that they are thought of today as coming closer to representing eternal verities than any other human discoveries.

It is inevitable that one should seek to extend them into the moral and spiritual realm. If material things are preserved with such meticulous care, is it likely that great spiritual values will be less conscientiously hus-

banded? This is what Jesus meant when he said, "Are not five sparrows sold for two farthings, and not one of them is forgotten before God?—Fear not, therefore, ye are of more value than many sparrows." This confidence in the ultimate permanence of those aspects of the human spirit which have been recognized by great souls as most priceless, constitutes today, as it always has, the mainspring of religious faith. There is no intention to argue here for the doctrine of immortality in the narrow sense in which it is ordinarily conceived. It is rather intended to express the faith that when an individual devotes his life and energies to the evolution and expansion of great ideals, he is playing a permanent part in fulfilling the divine purpose for humanity. Thus faith in God may well include not merely faith in the material resources which are provided by man's environment; it may also include a serene confidence in the abiding value of his own aspirations and endeavors.

The conservation principles, however, cut both ways. If it is true that nothing is lost, it is also true that neither material things nor spiritual values are created from nothing. There is too widespread a notion that the bounty of God is capable of falling like manna from heaven on unprepared soil. The creative achievements of humankind do indeed originate mysteriously enough in the human breast, but not from an empty breast. If there is anything which we know about the creative process, it is that man eventually becomes a creator only if he laboriously accumulates within himself the knowledge and the understanding from which new ideas are to be born. When Elijah called down fire from heaven

for his sacrifice, he provided material for combustion. We can reverently recognize the divine in Beethoven's symphonies, but there is also harmony and counterpoint. Without years of study and preparation on the part of the composer, God would have found another vessel for His bounty. We can see in a Raphael madonna the very distillation of divine purity, and generations can be inspired by it to nobler living, but it is nevertheless the culmination of ceaseless toil and struggle on the part of the artist.

There are many would-be scientists who lack the industry and stamina to pass through the years of apprenticeship to the promised land of productivity. Never having acquired the skill to pursue the will-o'-the-wisp of their ideas effectively, they are viewed as "crackpots," "pitchers broken at the fountain," unable to receive God's bounty or to pass it on to humanity. So, too, there are well-meaning people who ask all from God and fail to understand the meagerness of the returns. Yet, no great religious faith is possible for one who is unwilling to pay the price of sitting at the feet of the great religious teachers, of appraising and organizing their ideas in the light of his own experience. The great mystery of the human personality lies in the fact that as ideas are stored in the recesses of memory, they have a way of returning at some later date in new and glorified form. A Beethoven stores up a few simple notes and phrases, and one day they emerge as the theme of a great symphony. A Jefferson toils over the concepts of an ancient civilization, and years later in God's providence these ideas are metamorphosed into

the constitution of a great people. It is the function of true faith to provide inspiration for the preparatory toil, not a mistaken confidence that great achievement can come without struggle.

CHAPTER V

LOVE FOR GOD

IN ONE of the oldest of human documents, the book of Deuteronomy, we find the injunction, "Thou shalt love the Lord thy God." Although to Jesus this was the first and greatest commandment, few have been more generally misunderstood. Actually an exhortation to adjust one's self sympathetically to the realities of cosmic law, it has been interpreted as a counsel to sentimentality. More sincere spiritual energy has been channeled into unproductive courses by this misinterpretation than by many more widely advertised heresies in the history of Christendom. In the middle ages it militated heavily against the beneficent influence of the church on society, and in the modern world it is still alienating the sympathies of great numbers of people who by virtue of their sincerity, intelligence, and idealism can ill be spared.

Yet, when properly understood, the love for God constitutes the very core of Christian philosophy. Much has been written about "original sin," but the most hopeful characteristic of the human spirit is that it is capable of seeking the light with a fervor and persistence that constitutes the miracle of history. Not merely can a person force himself to obey the ten command-

ments; he can develop within himself a moral sense which makes obvious violations painful if not inconceivable. Let him catch a vision of the beauty and majesty of the divine creation, and it can well spur him into playing an honorable part in the crusade of mankind toward a better world. It is fortunate indeed that this is so, for the real problems which face him are not such as can be solved by reference to any code, however elaborate. They call for a delicate balance of judgment which, in turn, requires a highly developed moral sense. Day in and day out each individual must perform the functions of a jurist, and the sum total of the resulting decisions constitutes the march of humanity. The great truth expressed by the Deuteronomist is that man can approach these tasks with a vital love for righteousness and justice. Indeed, he is recreant if he fails to do so. Futile it is to prate of "social justice" until he has lit within himself the fires of enthusiasm for and loyalty to the great cosmic realities.

The first task of every individual is to become adjusted to the circumstances under which he must pass his life. The essence of our Christian faith is that fundamentally this environment is good because God is good. We recognize its many undesirable features, but these we somehow believe to be the consequence of man's ignorant or willful violations of supreme law. Herein lies the difference between Christianity and many other religious forms. Christianity has no place nor need for the appeasement of a sinister or capricious deity. We need feel no surprise that in an age when little was known about natural physical laws our Christian fore-

bears placed so much emphasis on the willful violation of moral law, sin, and saw in it the source of all human suffering. It is equally understandable that modern man, giddy with the strong wine of his achievements, should throw his primary energies into lifting the curtain of ignorance which veils the realm of natural law. It has required the disasters of the twentieth century to bring him to a full realization that a more widespread understanding of moral law and acceptance of its precepts are also prerequisites of human happiness. The unique contribution of Judaism and the religions which stem from it has been their discovery that far from being a vassal's yoke this obedience to moral law is in reality the stamp of human greatness.

The progress of society must, therefore, be along the complementary paths of scientific research and increased moral understanding and appreciation. Men who are devoting their lives to one of these great enterprises should not be hampered by the jealousy or mistrust of those who are just as sincerely engaged in the other. A minister or priest who raises the moral tone and social consciousness of his community is serving humanity just as fundamentally as the scientist who probes the mysteries of penicillin or cosmic rays, or the artist who, stirring the soil of our human emotions, inspires us to new endeavor. There has always been a tendency for the devotees of a great religion to ascribe to their own traditions too great a measure of finality. All have been too loath to accept new ideas as comparable in validity with the old. Yet the increasing complexity of modern society has injected new factors

into the moral picture which cannot always be assessed by a comparison with ancient standards. Indeed, setting up new standards of moral value which may be applicable to these new problems is just as much a task of research as setting up physical standards for the pursuit of scientific knowledge. Such an undertaking calls for a high degree of moral and historical sense and the same qualities of scholarship and dispassionate integrity which pay the highest dividends in scientific investigation.

The growth which has already taken place in man's understanding of moral principles is nowhere better evidenced than in his increased appreciation of the dignity of the human personality. One can find in the Bible only the bare seeds of revolt against the institutions of feudalism and slavery. The absence of specific condemnation of these social practices has often been used as an argument for their perpetuation. Yet the seeds of social consciousness implicit in the Sermon on the Mount were taking root and developing in humanity a sense of moral outrage against the existence of exceptional privilege and exceptional poverty of opportunity. Many centuries had to pass before this sense of outrage rose to such proportions that we find the conviction stated in a political document that "all men are created equal," and even today after still further generations of social struggle, we find many civilized communities loath to concede this equality to its underprivileged minorities. Who can say, however, that man's moral stature has not been expanding through nineteen centuries of Christian progress and may not

still grow to the point where he can cope successfully with the problems of a complex modern society? May it not be that certain differences in viewpoint between labor and capital, which today can only be compromised, will one day be permanently resolved by applying to them ethical principles which are not yet established in the conscience of mankind?

One of the difficult features of this enterprise lies in the necessity for each individual to develop in himself a sympathetic understanding of the great moral and intellectual values, to recapitulate in his own experience the insights gained by his spiritual leaders. Radios and automobiles can be passed down from one generation to another, but Euclid and the Parable of the Good Samaritan must be painfully parsed by each individual in the secret of his own chamber. It is disturbing to contemplate the manner in which the mere deletion of the Sermon on the Mount from one generation could lead to a Nazi Germany. Great as may be the rewards for research in the fields of science and moral principles, what can one say of the problem of instilling in our youth an appreciation of the moral plateau on which the greatest of their forebears dwelt and inspiring them to continue the ascent?

It is commonly recognized that each individual must gain a degree of adaptation to his physical environment. He must learn the laws of hygiene and sanitation, he must learn to eat and exercise properly, he must learn the hazards of poisonous plants and reptiles, he must recognize the onset of the more frequent forms of ill health and the most effective means for combating in-

fection. He must acquire knowledge of man's electrical, mechanical, and chemical tools if he is to avail himself of them intelligently and safely. With the power thus gained should come an appreciation of the almost miraculous resources at his disposal which beckon him onward to new conquest. But he should likewise be acquiring a similar appreciation of moral law and its import to the future happiness of mankind. He should be developing that sensitive respect for justice, humanity, and those social and ethical values which alone will insure the use of his new powers in a manner to the advantage of society. In short, he should be learning to love God, to keep His commandments, and to "be at home in his Father's house."

CHAPTER VI

LOVE FOR NEIGHBOR

IF THE command of the Deuteronomist to love God is a counsel to adjust ourselves sympathetically to physical and moral law, the command to love our neighbor, first found in Leviticus and reëmphasized by Jesus, is similar counsel to sympathetic adjustment with our social environment. Neither can be considered simply as a vague ethical precept which can be disregarded by the individual or by society at large without disastrous consequences. Rather they constitute together the great skeletal framework of basic law on which the fortunes of humanity must stand or fall. Regardless of the extent to which man may become master of his physical environment, his happiness will inevitably depend in considerable measure on the extent to which he learns to live with his fellows. Through most of human history man's attitude toward his neighbor has been dominated by his belief in an economy of scarcity, the notion that a limited and probably inadequate supply of the necessities and luxuries of life had to be shared among all people. On such a theory prosperity for one individual could be achieved only by limiting the prosperity of others. Feudalism and slavery were devised to provide for the dominant few an overwhelming share of the

satisfactions of life. Objection to such an organization of society were first voiced on moral grounds by man's great religious teachers. "Do unto others as you would have others do unto you." "Love thy neighbor as thyself." These counsels constituted the core of the revolutionary doctrine by which Jesus sought to reform the feudal theocracy of ancient Jewry. "But who is my neighbor?" And down through generation after generation has echoed the simple story of the "Good Samaritan" and the man who had fallen among thieves on the Jericho road.

As the tragedies of human history have been enacted and reënacted, this age-old parable has been falling more and more accusingly on the hearts of mankind, but just so long as human beings continued to believe in an economy of scarcity, they were bound to seek their own profit at the expense of their neighbors. Only in recent years has it been possible to sense the fundamental falsity of this pessimistic view of nature's potentialities. To the scientist and engineer of today there is no such limitation. Chemistry and scientific agriculture can provide substitutes for most if not all of the supposedly essential raw materials. Admission to the storehouse of atomic energy promises ultimate emancipation from back-breaking toil. With the eye of faith the prophet Isaiah could picture the desert blossoming as the rose, but it has remained for the modern engineer to make this dream a reality. The sound judgement of the scientist is today in accord with the moral insight of the seer. All humanity, not just a fraction of it, can prosper if man will discard the folly of brutal competi-

tion after "the things which are seen," and will join in the search for those resources of nature which today are not seen, but which tomorrow can provide for a happier society.

It is difficult for the modern scientist, accustomed as he is to abstract reasoning, not to think of human society as one great organic structure. According to modern physical theory the behavior of each elementary particle in a complex atom is mysteriously affected by the behavior of every other elementary particle. Faced with such mystery as this, it is natural for a theoretical physicist to think of human society as a single organism in which the potentialities of each individual are affected by the welfare of every other member of the human family. Just as one rotten apple can infect a whole barrel, so a cancerous social growth, starting in a Munich beer hall, can regiment the lives of a whole generation of American youth, and the desperate poverty of Indian peasants can cast a foreboding shadow over a generation of Americans yet unborn. In the light of such reflections does not the choice of the Galilean carpenter for his second commandment, "Thou shalt love thy neighbor as thyself," carry the savor of profound insight?

We have become so accustomed to utter dependence on our neighbor that we seldom stop to think of it. Even in the days of our pioneer ancestors, life would have been intolerable without the coöperation of miners, smelters, and blacksmiths to provide the axe and the plow. Today in our highly industrialized society it is an exceedingly rare commodity which an individual

can provide for himself. We do well on occasion to thank God for the resources which make possible our daily lives, but should we not also from time to time call the roll of the countless human beings who have contributed the skill and the toil to provide the rich satisfactions of our routine existence? As more and more people have been forced in these tragic years to leave their bench or furrow for our defense, the increasing scarcity of commodities which we had always taken for granted has emphasized this dependence. Can we fail to be left with a new sense of responsibility for the happiness and well-being of these myriads of our fellows? We are prone to forget that typewriter, radio, or automobile lies within our means only because they can be manufactured in prodigious quantities. Our own ability to enjoy these appurtenances of modern life is contingent on enough other people having the same ability to make their production at low cost possible. There is, therefore, nothing mysterious about the fact that today a high standard of living for one individual presupposes a high standard of living for great numbers of his neighbors, and an optimum standard of living can be attained only by extending its benefits to all.

There is, however, a more mystic sense in which this truth can be recognized. If we are today dependent on the toil of other human beings for these commodities, we owe them in the final analysis to the inventive and creative ability of a handful of peculiarly talented individuals. Churchill said very truly of the heroic band of British airmen who turned back the assault of the Luftwaffe in the dark days of 1940, "Never in the field

of human conflict was so much owed by so many to so few." Yet the whole structure of modern life is owed to a relatively small group of scientific geniuses, and our ethical and moral order is similarly the gift of an incredibly small number of inspired prophets and teachers. These are the men through whom the great gifts of the divine creator have been channeled to mankind. Rare as they are among the teeming millions of humanity, it is through similarly talented people that man must march forward in the generations to come. If we could ill afford to have sacrificed the contributions of a Shakespeare or a Faraday, can we conscientiously deny adequate opportunity to anyone who may be born a member of human society? There is a strange element of truth in the traditional search of Tibetan lamas for a successor to the Dalai lama on his passing. By good or ill fortune, as the case may be, no means are provided for recognizing highly talented individuals at birth, and only by a universality of opportunity can there be any reasonable likelihood that society will be able to take full advantage of its creative resources. Viewed in this light, human life takes on in a very real sense the quality of sacredness with which it is endowed in Christian philosophy. With every life which is lost before it has had an opportunity to achieve its maximum potentialities a unique channel of God's providence has been lost to mankind.

It is this evaluation of human personality which dictated the attitude of Jesus to Mary Magdalene, which inspired the heroic mission of the Jesuit fathers in the newly discovered wilderness of America, and which set

in motion the Protestant missionary enterprise of the nineteenth century. These undertakings may often have been described in words that sound unfamiliar to modern ears, but there was ever present the deep conviction of the inestimable worth of the individual soul. In analyzing the basic principles of our religious faith which have crystallized out from the teachings of Jesus, few can take precedence over this recognition of the dignity or sacredness of the human personality and the essential unity of the human species.

CHAPTER VII

THEOLOGY

THE more important elements of the concept of God which have been developed in the foregoing chapters, although expressed in terms of Christian ideology, are to be found in all the truly great religions. This common basis of religious thinking is impressive. It should be utilized to a much greater extent than in the past to form a solid foundation for mutual respect and co-operation. The great religions diverge, however, when they seek to evolve from these foundations a more concrete understanding of the nature of God and His relationship to mankind. This is the function of theology. The human heart is ever possessed by an insatiable desire to understand more fully the nature of man's physical environment and the mysterious spiritual forces which are constantly experienced in the innermost being. Of the two desires, that for a concrete knowledge of our material environment would appear to be more readily satisfied.

Ever since the days of Galileo and Newton the experimental method of science has been accepted as the most promising tool for gaining such knowledge, and has abundantly justified its use for unlocking the secrets of the natural world. Its success in providing a true

understanding of the more fundamental features of physical phenomena has not, however, been so impressive. We have learned the procedure that must be employed to transmit or receive a radio wave, but the nature of the wave itself and the medium, if it exists, through which the signal is transmitted, remain a mystery. We know much about the precise laws governing gravitational and magnetic fields of force, but the forces themselves are today just as baffling as they were to the sailors on the *Santa Maria* when they set out with their compass needle to discover a new world. Pursuing the ideas associated with the atomic theory, we have gained an extraordinary mastery over the chemical resources provided by matter in its countless forms and manifestations, but the atom itself is still veiled in much of mystery. The knowledge gained of the properties of light and electricity have made possible television and the electron microscope, but light itself has thus far defied all efforts at description in terms of the more familiar phenomena which we like to use in forming our ideas. Certain experiments call for a description in terms of waves similar to those on water or like sound in air. Other experiments just as conclusively require us to think of light as composed of streams of particles. There seems no logical way of reconciling such dissimilar characteristics, and we are forced to be content with envisioning it as something uniquely different from either. We can speak with confidence of the way in which light will behave under given circumstances, but we are unable to picture it adequately as its functions are performed.

In seeking to understand his physical environment man has made use of scientific theories. Some of them, notably the Copernican Theory of the solar system, may rest on almost as solid foundations as the great principles themselves, but by and large they must be viewed as more tentative in nature, as temporary structures which may one day be replaced by better ones. Thus we have two theories of light, the wave theory and the corpuscular or "quantum" theory. Each is effectively used to account for that category of phenomena to which it is adapted, and within that category it is quite satisfactory in predicting the outcome of new experiments, thus satisfying the criterion of fruitfulness. When either theory, however, is applied to phenomena in the other category, it no longer meets with success. This curious dualism in the nature of light has its counterpart in many other fields of physics. For a quarter of a century it seemed permissible to think of atoms as aggregates of exceedingly small particles of electricity. In the most elaborate theoretical structure which utilized this type of picture, the Bohr Theory, the atom was viewed as a positively-charged nucleus with negatively-charged electrons circling about it in planetary orbits. This theory was successful in accounting quantitatively for many atomic properties, and in predicting a significant number of hitherto unknown characteristics. But in the early twenties, when the Bohr Theory had begun to be accepted as a correct description of the atom, new phenomena were discovered to which it was found inapplicable. To account for these, the electrons themselves had to be considered as elab-

orate wave structures spread over the entire atom. The quantitative expression of the new "wave mechanics" proved intricate, and the wave-mechanical theory of the atom consists essentially of systems of mathematical equations which have thus far defied more concrete expression. Because of this disadvantage, and the forbidding nature of the calculations involved in applying it to specific problems, it is still customary to use the Bohr Theory whenever possible, and to resort to wave mechanics only when the older theory is found inapplicable.

It seems reasonable to ask whether the experience of scientific workers in seeking a satisfactory picture of our physical environment may not contain elements of value to the theologian as he seeks to clarify our idea of God and His relation to humanity. It is not without significance that from Psalmist to Evangelist the mystery of light has often been associated with the mystery of the divine being. Just as our scientific knowledge of light has added immeasurably to its practical utility without solving the age-old puzzle of its true nature, so our increased knowledge of God's bountiful provision for human needs has failed to dissolve the cloud of mystery which surrounds His being. I imagine that we would not wish it otherwise. We may well seek to understand the manner in which divine Providence operates to the benefit of mankind, but as Moses covered his face before the burning bush, it may be wise to refrain from compressing our concept of God too narrowly within familiar patterns. This is not to say that the effort of the theologian to evolve a logical

theory of divine Providence is improper. Just as a physical theory can contribute fruitfully to our utilization of nature's resources, so a theological pattern may be helpful in developing our full spiritual capacities. If, however, the experience of the physicist has any bearing on the task of the theologian, it would suggest that theological as well as physical patterns can best be viewed as steps toward a fuller knowledge, and should be constantly tested in terms of their utility. It would also suggest that in the face of such mystery we should accept each new insight with humility, and be fully prepared for alterations as the majestic pattern of the universe unfolds with the passage of time.

Physical theories which have passed the test of fruitfulness and have then required alteration have usually been found to contain elements of permanent value. The Bohr Theory is a case in point. Though basically deficient, it is still capable of effective use, particularly in the fields of chemistry and astronomy. Theological theories are often summarized in the form of creeds. The value of such statements in clarifying the position of the church to its own communicants and to the secular world can scarcely be questioned by one familiar with the Christian church. If certain of these affirmations, as they come down through the centuries, sound strange to modern ears, it is wise and appropriate to search behind them for those fundamental truths which have brought hope and courage to generations of thoughtful people. One wonders, however, if too close adherence to the old forms of expression may not at times conceal rather than clarify the truly vital function of religion in the modern world.

CHAPTER VIII

THE TRINITY

ANY individual who adopts a theistic philosophy of life and tries to vitalize for himself the concept of God, will find three major sources for this enrichment: the physical world, thought of as God's handiwork; his fellow human beings and their experiences, as recorded in great literature; and his own spiritual nature. It is altogether likely that in early life the evidence of beauty and orderliness, present in the physical world, will speak most eloquently of a divine being, but for many thoughtful people, as life advances, the mystery of one's own personality and the contemplation of the nobility present in humanity's greatest souls will more and more effectively reinforce this evidence of a beneficent background to human society. The characteristics of God as revealed by these three methods of approach are inherent in the Christian conception of the Trinity. Among primitive peoples God was largely associated with the more awe-inspiring of natural phenomena, the thunderbolts of Jove and the fires of Vulcan, but early in the history of Israel the prophet Elijah in his mountain retreat found God, not in the wind, the earthquake, or the fire, but in the still small voice; and as the Hebrews developed their conception of God

under the tutelage of their great prophets, the inspiring example set by these heroic figures played no small part in clarifying for them the lineaments of the divine Being. Thus the early church fathers came naturally to think of God in the three aspects of Father, Son, and Holy Spirit.

The concepts of Father and Holy Spirit are so perfectly adapted to the role of God as creator and source of man's spiritual power that no further clarification would seem necessary. The role of the Son in this trilogy has been traditionally related to the miraculous events surrounding the birth of Jesus which served to set him apart from ordinary human beings. In modern years, however, as we have learned more about the great structure of law which governs the physical world, many people have felt increasingly reluctant to base their spiritual lives on ideas so remote from reproducible experience. Without entering into the theological controversy which centers about this issue, it is worth while to examine the significance of the person of Jesus even when unsupported by the doctrine of the Virgin Birth.

Just as the Hebrew people heard in the utterances of their prophets the very voice of Jehovah, so the Christian concept of God has been in large measure derived from the picture given in the Gospels of the life of Jesus. It is this dramatic presentation of the nature of the heavenly Father and the true character of the moral order which constitutes the center of Christian ideology. This common body of thought is the joint possession of all branches of the church, and has placed its impress on

nineteen hundred years of Christian history. The Christ that we see today, after all these centuries, is not so much a being of flesh and blood as the fountainhead of a body of spiritual and ethical truth that has already gone far toward revolutionizing human relations. We know nothing about his physical appearance. More portraits have been painted of him than of any other individual, but all have been the product of the artist's imagination, and have sought to convey to our emotions something of the majesty of his teachings. His life was cut off at the untimely age of thirty-three, and all but three of these years are veiled in obscurity. Yet during this brief public career it was as if the genius of his personality had momentarily dispersed the cloud which separated man from his creator.

One of the functions of the physicist and engineer is to design apparatus for the study and utilization of nature's resources. That they have become quite adept at this task is evidenced by the intricate perfection of such modern miracles as radar and the automatic controls for directing the fire of a battleship. Cameras have been designed to record permanently and in color the minute details of a landscape as it is traversed by a speeding airplane. Computing mechanisms have been devised to perform expeditiously mathematical operations that would demand the efforts of an army of intelligent slaves for a lifetime. Nevertheless, the most impressive of these inventions are clumsy in comparison with the elements of a living organism. No one who has not had a part in designing scientific instruments is prepared to appreciate the perfection of biological structures.

Viewed as a machine for converting the energy of fuels into useful mechanical work, the efficiency and adaptability of the human body are the despair of the engineer. To the optical designer the eye is the ultimate standard of perfection. Contained within the compass of little more than a cubic inch, it can, when dark-adapted, approach or exceed the sensitivity of the most elaborate of light-detecting mechanisms. Yet it can quickly adjust itself to intensities which would jeopardize or destroy our most cunningly devised instruments. It recognizes gradations of brightness and matches the delicate nuances of color in a manner scarcely surpassed by our colorimeters. The control mechanisms of the nervous system are incredibly effective and our ability at times to repair them must be counted among the greatest of human achievements. Nevertheless, all these components of the body are undergoing constant change and replacement throughout life. Over a period of years little remains of the original material in any one of them.

The individual, however, remains; the color of the eyes, the facial contour, the general dimensions of the bodily parts, most of those items, in fact, which serve to distinguish one uniquely different person from the myriads of his fellows. It is none of these, however, which constitutes the true personality of the individual. With our limited knowledge of biological processes it is possible to speculate that this mysterious personality is the summation of all the events and impressions which have made their impact on him through life. The fleeting images on his retina, the sounds that

fall on his ears, the ideas from books and conversations, gathered and preserved in the storehouse of memory, undoubtedly contribute vastly to the form and character of the mature man; but the manner in which they are built into his being would appear to depend on something else which remains the abiding mystery of human life. One soldier comes back from the battlefield with his nature warped and shattered. Another, passing through the same bitter experience, comes back with his character refined and molded into a more vital instrument for the service of humanity. Some people accept through life all of the best that society has to offer, and give back from the dark depths of their being little but folly and vice. Others, much less favored by outward environment, receive the little that falls to their lot and, subjecting it to the hot fires within the crucible of their own consciousness, return it to society in glorified form and content.

These are incontrovertible facts. The interpretation placed upon them constitutes one's philosophy of life. In Christian ideology this human body is the potential habitation, the temple, of the Holy Spirit; but every individual is master of his own house, the "captain of his soul." He has it within his power to accept or exclude the divine spirit. Insofar as he accepts this indwelling guest, his consciousness becomes a workshop for processing the gifts of divine Providence into appropriate form for the good of humanity. The contributions which such individuals make, bearing the impress of the divine Spirit, give to their donors those characteristics which are summed up in the ecclesiastical phraseology

of St. Paul, "Children of God and joint-heirs with Christ." Of Jesus himself, the founder of Christian society, the fountain-head of our spiritual and social ideology, what can we infer except that he lived in such intimate association with the heavenly Father that his very thoughts and acts were the thoughts and acts of divine Providence itself? Such an approach to the doctrine of the divinity of Christ is entirely independent of one's attitude toward the Virgin Birth. It is in no way at variance with the structure of basic law which constitutes the framework of our scientific thinking, and it calls for no sacrifice of personal integrity such as may be involved in accepting under compulsion a traditional dogma. The objection is often raised that by removing the sharp line of demarcation between the nature of Christ and other members of the human family it somehow diminishes the authority which attaches to his teachings. It would appear, however, that after nineteen hundred years of Christian experience this authority is to be sought not in dubious tradition but on the pages of history and in the moral conscience of mankind. It may seem to a thoughtless person that loss has been suffered in substituting for the vaguely defined ecclesiastical idea of a unique divinity a vital concept that is capable of embracing any sincere individual. This conception of the potential sacredness of the human personality is, however, no new invention. It dominates the pages of the New Testament.

The integration within the concept of God of two such dissimilar ideas as the Father and the Holy Spirit has given endless difficulty to the theologian. That the

infinite purpose behind the universe, the architect of nature's treasure house, could also dwell simultaneously in all reverent hearts, presents a mystery which defies imagination. It is constructive to note, however, that this concept which originated with man's great religious teachers long ages ago, and to which many of the noblest human spirits have clung so tenaciously through the centuries, is almost an exact counterpart of the ideas evolved by the physicist in his attempt to understand the physical world. The light from a distant star delivers to each atom on which it falls the full quota of energy with which it began its journey thousands of years ago. Each little quantum of light is an individual messenger from one particular atom of the star to one particular atom in the eye or the photocell that receives it. And yet these messengers are not independent. They behave like parts of a gigantic wave, tied together by strange mysterious laws into a great coöperative enterprise. Some of the information gleaned by astronomers in recent years regarding the nature of the stars has been gained from these coöperative wave properties; some from the revelations of the individual quanta. Together they paint the total picture of cosmic grandeur.

This ability of light to be at the same time a wave and a corpuscle constitutes one of the great puzzles of modern physics. It is, however, only one such paradox. So universal has become the necessity to visualize a phenomenon from two utterly dissimilar viewpoints that Bohr suggested a new principle, the "Principle of Complementarity," which would postulate the necessity of such a dual understanding of all natural phenom-

ena. It can scarcely be a coincidence that the concept of God, as it has crystallized through the centuries of Christian history, embraces the omnipotent majesty of the cosmic universe and the omnipresence of the divine spirit in receptive human hearts. The conviction that the restless seeking and creative achievements of individual souls are somehow guided and coördinated into accord with some great mysterious pattern, lies at the very heart of man's religious thinking.

CHAPTER IX

SIN

It is well now to turn from the hopeful and stimulating aspects of our human enterprise to some of its more sinister features. The law of the conservation of energy, in its application to heat and mechanics, is designated as the First Law of Thermodynamics. Its optimism is in large measure balanced by the stark pessimism of the Second Law of Thermodynamics, itself also a scientific principle. The total amount of energy present in the universe never changes and never suffers loss, but its availability for useful purposes is constantly diminishing.

This property of nature was first recognized and is even today most readily appreciated when the methods are considered by which man has been able to convert heat into mechanical energy. The first effective agent for performing this function was the steam engine. By this invention man was able for the first time to make use of the vast store of energy present in such fuels as coal and oil to lay the foundations of our modern industrial society. The precise equivalence of heat and mechanical energy was established about the middle of the nineteenth century by the researches of Joule, but man has never been able to extract from heat more

than a fraction of its true energy content. We know now, thanks to the researches of Carnot and Kelvin, that this is no mere lack of skill on the part of our engineers. It is due to fundamental limitations placed by nature on the possibility of such conversion. Heat can be transformed into mechanical energy only as it flows from a warmer to a cooler reservoir, from boiler to condenser, for example, and only a fraction of the heat lost to the boiler can be converted into useful work. The rest is discarded to the condenser. The magnitude of the useful fraction is determined by the difference in temperature between the two reservoirs, the greater the temperature difference, the greater being the efficiency of the transformation. As more and more of our fuels are consumed, and more and more heat flows to lower temperature reservoirs such as the great bodies of water on the earth's surface, the energy available for our use becomes less and less accessible.

We have presented, therefore, the disturbing picture of a time, presumably in the far distant future, when all fuels will have been burned, all heat reservoirs equalized in temperature, and no mechanical energy will be available for the use of human society. There will still be just as much energy in the universe as there is today, but it will no longer be in useful form. This is the broad meaning of the Second Law of Thermodynamics. Almost alone among our scientific discoveries this great principle speaks, not of inexhaustible treasures to be uncovered, but of the gradual depletion of natural resources, and an ultimate end to the drama of the universe.

Much light is shed on the meaning of this strange principle by the kinetic theory, which pictures all matter as composed of molecules in a constant state of thermal agitation. Heat energy is envisaged as having its seat in the chaotic motion of these molecules, and the transformation of heat into mechanical energy is simply the conversion of this hither-and-yon aimless motion of the molecules into coördinated useful motion in our engineering devices. The relative ease of transforming mechanical energy into heat is evidence of a strange preference by nature for a state of disorder and a singular reluctance to permit the recovery of order out of chaos. Much of present-day pessimism regarding the future of human society stems from this scientific counterpart of religious eschatology.

It is highly appropriate, therefore, in turning to the darker side of man's moral nature to view it against the backdrop of this scientific law. For, if energy in its most desirable form, mechanical energy, is less accessible than heat, so also the things of greatest value in life are most difficult of attainment, and the more sinister features of society seem to grow and develop of their own accord. This has never been better stated than by Jesus when he said, "—wide is the gate and broad is the way that leadeth to destruction, and many there be which go in thereat: because strait is the gate, and narrow is the way which leadeth unto life, and few there be that find it."

Seldom has a people been brought face to face with this somber truth more tragically than our own generation. There was widespread confidence in America at

the beginning of the twentieth century that the basic principles of international justice and humanity were so universally recognized by civilized Christian nations that resort to war by any of them "as an instrument of national policy" was inconceivable. So generally was this opinion held that the most modest expenditures for the maintenance of a military establishment were regarded as chauvinistic and provocative. The possibility of a highly cultured people like that of Germany, deeply admired in this country for its scientific and humanistic achievements, deliberately embarking on such a policy was almost beyond imagination. Even after the disillusioning experience of the First World War many held to the belief that it was all a tragic blunder. Only with the rise of the Nazi regime and its callous disregard for traditional human values were many Americans willing to face realistically the age-old facts of human depravity.

All useful coördinated energy has its origin in the orderly structure of chemical substances. The scientific pessimism associated with the Second Law of Thermodynamics arises from the apparently limited stores of concentrated energy present in this familiar form. The recent revelation of the manner in which incalculable quantities of atomic energy can be made available for human use, goes far toward removing this apprehension. To be sure, man has merely unlocked the door to the utilization of the same sources of power which have been automatically at his disposal in the radiation from the sun. The new discoveries, however, may enable him to tap these resources at a greatly en-

hanced rate, and so to increase the tempo of human progress. They may not altogether lay the ghost of an ultimate end to the present productive stage in terrestrial affairs, since the extraction of atomic energy seems to involve an irreversible transformation of matter into radiation. It is too early, however, to be sure of the cosmic irreversibility of this process, and in any case the eventual doom is pushed far into the measureless reaches of time.

The fact that the irreversible tendency of natural processes toward chaos, as recognized in the Second Law of Thermodynamics, is balanced in God's providence by a practically limitless supply of energy in the ordered structure of the atom, should give pause to the prophets of doom in the spiritual as well as in the material realm. May not man's congenital rebellion against moral law and his proneness to choose the broad way of evil be similarly balanced by inexhaustible sources of spiritual power? For just as material progress finds its motive power in the stores of energy in the material universe, so spiritual power is dependent on the talents and devotion of toiling human beings, and society bears fruit only as the insights and ideals of its noblest members are passed on and effectively absorbed by the people who make up the great body of humanity. The fears so often expressed for the moral and spiritual possibilities of the human species spring basically from doubts regarding the ultimate sources of creative achievement. Are they finite and destined for eventual exhaustion, or can we have faith in the infinite reservoir of divine Providence?

The release of atomic energy was the culmination of a series of researches extending over half a century in which a mere handful of eager scientists were probing the ultimate ramparts of the physical world. The teachings of Jesus also were salvaged and passed on to subsequent generations by a desperately small company of believers. Indeed, the outstanding problem facing the modern world would seem to be that of inoculating much larger segments of society with the mysterious virus which has raised particular individuals to such heights of productive achievement. What fraction of humanity would have to see the vision of a new heaven and a new earth in order to save civilization from ruin can only be surmised, but in the biblical tradition of the destruction of Sodom, God assured Abraham that the city would have been spared if but ten righteous men had been found within its gates. Are we not entitled to see in the measure of idealism which pervaded our wartime America the beneficent influence of a devoted minority that believed profoundly in God's purpose for humanity and had spread the leaven of religious ideals far beyond the confines of its own fellowship?

Fundamentally sin may be defined as a violation of the great commandment of love for neighbor. An individual may act counter to the physical laws of his environment with disastrous consequences to himself alone, but any violation of the moral law leads to an inevitable sharing of the consequences with others. "—for I the Lord thy God am a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me; and

showing mercy unto thousands of them that love me, and keep my commandments." It is the essence of man's increased understanding of God that this ancient recognition of the social consequences of sin is to be interpreted not as a manifestation of divine intransigence, but as a simple statement of fundamental moral law. Man cannot ignore the welfare of his fellows without bringing disaster to himself, his neighbor, and his own posterity. "The moving finger writes, and having writ, moves on, nor all man's piety nor wit can lure it back to cancel half a line." A St. Augustine may reorganize his own life into accordance with God's purposes, but the damage which has already been done to society can scarcely be erased.

This ominous irreversibility of man's moral behavior is strikingly analogous to the similar irreversibility to be found in the Second Law of Thermodynamics. The fraction of the energy present in a given source which can be converted into useful work is forever set by basic law. This optimum fraction, however, can only be attained when man makes use of reversible processes. Each detail of the mechanism designed for this purpose must be capable of retracing its operations in such a manner as to restore to its initial condition every feature of the physical agency employed. Only when this requirement of reversibility is violated does the availability of the energy decrease.

Natural processes are in general characterized by a high degree of stability. When a natural state is disturbed, it has a gratifying tendency to return to its initial condition. This is in accordance with the con-

servational principles which function so beneficently to repair the damage wrought in human bodies by disease. Irreversible processes, however, exhibit the opposite tendency. Once started, they sweep on to the final exhaustion of the sources of energy on which they feed. Familiar examples are the detonation of an explosive and the spreading of a chain reaction in uranium. So it is with sin. It spreads like wildfire through the individual heart or through the dry tinder of human society to the utter dissipation of our patrimony.

CHAPTER X

THE CROSS

THE existence of evil in human society has been recognized through all the ages as the major threat to the welfare of mankind. Laws were framed for the protection of society, and agencies were set up for administering them, but through it all man has been troubled by the ineffectiveness of this method of dealing with the dilemma presented by sin. In the most cunningly devised of organized communities the wicked continue to prosper at the expense of the righteous. Recognizing the fallibility of human institutions, and developing through the ages the concept of God as the source of truth and justice, the noblest of human souls have ever expressed a profound faith in the ultimate triumph of righteousness, "For the Lord knoweth the way of the righteous; but the way of the ungodly shall perish." Indeed, the apparent failure of divine justice to function in the realm of moral law with the certainty and dispatch which characterizes it in the realm of physical law, has been the prime source of man's conviction that this human life, as we know it, is not all; that if judgment is delayed, it will somehow be meted out in the unknown hereafter.

The deeper this conviction is held, the greater will be

the burden of the sense of sin as it rests on the individual conscience. This is no invention of Christian theology. It was a dominant conception of ancient society, both Greek and Hebrew, and is found in all of the great religions. It has led inevitably to the idea of atoning for sin in this life by sacrifice or penance, and thus preparing the soul for a happier hereafter. The modern conception of God, not as a sentient individual after the human pattern, subject to caprice and persuasion, but as the embodiment of physical and moral law, necessitates a revaluation of this philosophy. The moral nature of man has progressed too far under the guidance of his great teachers to continue to accept the notion of the Greeks that by sacrificing a fraction of the rewards of iniquity, by dividing the loot, he can evade the consequences of wrongdoing. Nor can he believe that sins committed against his fellows can be compensated for by sufferings which he himself may voluntarily undertake. Similarly the idea that one individual, by accepting the penalty for another's misdeeds, can satisfy the demands of moral law, though prevalent in the ancient world, is repugnant to the modern conscience. Though taken for granted in antiquity, the giving and taking of hostages has no sanction in modern ideology. If the doctrine of vicarious atonement, so basic in the traditional statement of Christian theology, is to retain its significance, elements must be sought in it which are not apparent on the surface.

One of the most significant features distinguishing a living organism from an inanimate object is the process by which, while retaining its identity, its ac-

tual substance is constantly undergoing change. Old cells are worn out and discarded, and new ones take their place. Not merely is the human body able to replace worn-out components in this fashion; its health actually depends upon the normal destruction of old tissues and their continual replacement. The healthy individual is the one who performs regularly a sufficient amount of physical work to insure the proper continuance of this process. Viewed simply as a biological mechanism, man was designed to function under conditions which demanded such physical exertion and, lacking it, even mechanisms of such extraordinary adaptability soon cease to operate effectively and eventually die.

So too, human society, viewed as a single great organism, is composed of individuals who minister to its needs and perform its functions. As generation follows generation, these individuals are succeeded by others, but the dominant features of society remain; or if they change at all, it is gradually and imperceptibly like the changes in the human body from infancy to maturity. The health of society, like that of the body, depends on the well-being and continuous functioning of all its parts. If any of these human components of society fatten themselves abnormally at the expense of other components (like cancer in a biological organism) they must be subject to surgery with all the hazards to the survival of the organism as a whole which attach to such drastic methods. All parasitical attempts of individuals or groups to improve their condition at the expense of society as a whole are in the final analysis steps

toward their own total destruction, whereas efforts directed toward the common good result in the ultimate betterment, not merely of society as a whole, but of the particular individual or group concerned. This is the basic truth contained in the words of Jesus, "—whosoever would save his life shall lose it; and whosoever shall lose his life for my sake shall find it."

The difference between true Christian philosophy and other theories of human society is to be found in the attitude taken toward the relation between service and reward. Capitalism in its crudest expression bases reward in considerable measure on the quantity of goods already possessed. Socialism would seek to base the reward on the contribution which an individual makes to society, whereas Communism would make its appraisal on the grounds of individual need. Christianity at its best does not concern itself with the apportioning of the reward. It asks only for the individual to make his maximum contribution to society, and promises in return only the "peace that passeth all understanding." Christ doubtless did believe in a survival of the human soul after death, but he never offered it as bait to the covetous. The great bulk of his teachings relates rather to man's obligations under the moral order. These obligations are never represented as primarily intellectual or emotional, but solidly social in character. The rich young ruler who had kept all the traditional commandments from his youth up was counselled to sell all his possessions and give to the poor. If Jesus pictured his way of life as a happy one, that happiness was to be derived from the conscious-

ness of service well rendered. "—whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant." "If any man will come after me, let him deny himself and take up his cross and follow me." "Blessed are ye when men shall revile you, and persecute you and shall say all manner of evil against you falsely, for my sake." True, the beatitudes conclude with the stirring passage, "Rejoice and be exceeding glad: for great is your reward in heaven: for so persecuted they the prophets which were before you." We must not, however, dissociate this utterance from the equally positive statement that "the Kingdom of Heaven is within you." There is no intention to deny the likelihood that the great body of teachings which center about the Kingdom of Heaven may, and probably were intended to, convey a dual meaning. They are couched in the language of man's deepest aspirations for the preservation of those elements of the human spirit which seem worthy of survival; but Jesus never gave cause for belief that even his own sacrifice on the cross could by any process of mental gymnastics serve as a substitute for man's fulfillment of his obligation to society. In a day when Christianity is being criticized as an unprofitable philosophy, an "opiate of the people," this truth should be sounded from the housetops.

It was the social emphasis in the teachings of Jesus that led to inevitable conflict with the more prosperous elements in the society of his day. The gilded leaders of Judean theocracy presented too sorry a spectacle when subjected to the intense light of Jesus's

moral philosophy for them to accept its validity without a struggle. We should not be too harsh with them, however, from our vantagepoint in history. Nearly all human institutions contain elements of both good and evil, and this Jewish aristocracy with all its faults had assembled and made available in Palestine at the birth of the Christian era all the best of the insights which noble individuals had gained in the centuries of Hebrew and Greek culture. If they lacked the genius to coördinate this mass of material and extract from it its true moral content, they are no more to be condemned than is our own generation for a similar fault. In failing to recognize such an achievement on the part of the despised Galilean, they were merely following the tragic pattern of all history. Even the amiable Socrates had to take the cup of hemlock from the hands of his countrymen, and centuries later Galileo, the father of modern science, was to suffer at the hands of the Christian church.

It is the unfailing characteristic of entrenched evil and ignorance to be displaced only at the cost of devoted human sacrifice. The crowning glory of human society is to be found in the willingness of its noblest members, once a moral issue has been adequately defined, to "set their faces steadfastly toward Jerusalem." Thus it is neither an accident nor a consequence of a religious theory that the cross of Christ has become a universal symbol of the sacrificial devotion of humankind at its best. Whether found in the chancel of a village church or on the bloodstained volcanic ash of Iwo Jima, it is ever a reminder that only by the agency

of human toil and suffering can the consequences of sin and ignorance be assuaged. "Even as the Son of man came not to be ministered unto but to minister, and to give his life a ransom for many." One needs no ecclesiastically sharpened sensibility to apprehend the significance of the passage from Lincoln's Second Inaugural Address, "Yet, if God wills it (the scourge of war) continue until all the wealth piled up by the bondsman's two hundred and fifty years of unrequited toil shall be sunk, and until every drop of blood drawn by the lash shall be paid by another drawn with the sword, as was said three thousand years ago, so still it must be said, 'The judgements of the Lord are true and righteous altogether.'"

Much of the best that we have in modern life we owe to the teachings of Jesus. The estimate which he placed on the worth of the individual irrespective of wealth or poverty, race or class, sickness or health, wisdom or ignorance, came as a breath of mountain air to a world long dominated by the snobbishness of Greek thought. If each individual was a unique spirit, a potential channel for mediating God's gifts to humanity, the habitation of that spirit was also sacred. However damaged by disease or misfortune, it was to be cared for with the utmost tenderness, and nursed back if possible to a life of service. The results of the example set by Jesus in his healing ministry have never been shown to such advantage as by a comparison of the medical corps of the American army with that of the Japanese. The ideal so deeply ingrained in the modern conscience that the benefits of education should not be limited by race,

religion, wealth, or station in society, flows likewise from this basic insight. Whatever has been accomplished (and admittedly much remains to be achieved) stems directly from the revolutionary concepts of the Galilean carpenter. These basic principles collided head-on with those of a smugly entrenched feudal society, and would have remained in a state of innocuous desuetude, had it not been for the sacrificial vigor with which they were presented. It was the cross of Christ which branded them into the human conscience, and insured their preservation and growth through the ages.

Herein is to be found the power of the cross as a revolutionary force for human betterment. Man has ever been moved to emulate the accomplishments of his greatest leaders. Only the example of Jesus could have led Father Damien to his self-effacing ministry to the lepers with its consequences in the form of scientific study and progress toward the alleviation of this scourge to humanity, and only this same heroic pattern could have led Albert Schweitzer to renounce the honors and acclaim of civilized society for a life of service to the natives of central Africa. Yet this service, by the interest which it inspired and the light which it shed on the problems of tropical disease, has advanced immeasurably the welfare of those who dwell in equatorial regions. Though the consequences of the example set by Jesus have been highlighted in the achievements of humanity's great heroes, the effects have been much more widespread. If particular individual souls have been inspired to live lives of rare devotion, whole generations have come to recognize the

element of service as an essential ingredient in the good life, and to appraise a man's achievement, not by what he gets for himself, but by what he gives to his fellows. Herein lies the true justification for the continued cultivation of religion in modern society. It is very much to be doubted if rational human beings will be stirred to follow in the footsteps of their great moral leaders if they are not deeply persuaded of the existence of something above and beyond themselves which is worthy of their allegiance.

CHAPTER XI

IN REMEMBRANCE OF ME

ONE of the most noteworthy features of present-day thought is the pessimism which is so singularly rampant regarding the future of human society. This is particularly remarkable in view of the colossal achievements already scored in the present generation. The advances made in science and technology, medicine and public health, transportation and communication, educational and administrative techniques, all would seem to warrant a more hopeful outlook. True, we have just passed through the most destructive war in all history, but we have today the knowledge and skills required to repair the damage and move forward to new accomplishments with a speed which could never have been envisaged after similar disasters of the past. It is worth reminding ourselves that such pessimism has not infrequently followed hard upon similar periods of human progress. Thus in the era of greatest achievement in the history of the Hebrew people following the successful wars of David and the national prestige gained under Solomon, we find the stark pessimism of the Book of Ecclesiastes closely associated with the magnificent spiritual optimism of the Psalms. Like so many of our present-day scholars, the "Preacher" could see

little hope for permanent human progress. "All the rivers run into the sea; yet the sea is not full; unto the place from whence the rivers come, thither they return again.—The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun."

Such a thesis is, however, more difficult to maintain in the modern world. Many natural processes such as evaporation, precipitation, and the functioning and growth of biological organisms are indeed cyclic in character. The great enterprise of humanity, however, is no detective story which can be unravelled by mere familiarity with the general pattern of other detective stories. It is a pilgrimage into a strange and mysterious country where at any time a turn in the road may reveal a new and breath-taking panorama. The discovery of the scientific method was like the opening of a portal destined to lead mankind upward to new heights of accomplishment. Once having passed through this gateway, there could be no turning back. Individual travellers might linger by the wayside, but the forward surge of humanity as a whole could not be denied. Similarly the vision presented by the teachings of Jesus of the spiritual capacity and responsibility of mankind pointed the way irrevocably to new and higher forms of human relationship. Progress may not be automatic, but Chinese peasants who have once glimpsed, on the cinema screen, the vast fields of waving grain and comfortable farmhouses of a free American Commonwealth will never permanently resign themselves to a life of serfdom, and thoughtful individuals who have

once caught a vision from the Gospels of a new heaven and a new earth can scarcely be reconciled to the more sordid aspects of contemporary society.

Although the benefits flowing from scientific progress seem capable of being passed on intact from one generation to another, this is only true because of the esteem in which they are held. The continued use and improvement of such boons as automobiles and electrical equipment can only be assured by the elaborate training of generations of competent people in the skills necessary for their production and maintenance. Similarly if we are to use and profit by the resources unveiled within the atom, large and growing numbers of enthusiastic young scientists must become skilled in all the forbidding intricacies of modern physical theory and practice. The pathway of scientific progress contains many a steep ascent and is bordered by dark and dangerous chasms. It can be traversed only if legions of devoted neophytes are willing to embark on the task of fitting themselves for the assault. So in the realm of spiritual and aesthetic values, mind and heart must be trained to see the glories which our forefathers sensed and to build them into our modern institutions. Abstract values, such as truth, justice, liberty, and consideration for one's fellows, are no more the natural possession of untrained human hearts than the capacity to repair a radio receiver; and lacking cultivation, they may vanish from the earth.

The function of kindling in each new generation a loyalty to all that is best in Christian tradition and of keeping the fires of personal devotion burning more

and more brightly through life, has been the self-imposed task of the church throughout the history of Christendom. It has sought to do this by its program for the religious education of its youth and by services of worship and inspiration. No one who is associated with the church in these modern days can fail to be plagued by doubts regarding the effectiveness with which it is performing these tasks, and persons not associated with the church, who have subjected themselves only infrequently to its ministrations, are prone to skepticism concerning both their validity and their significance. It is not the intention to enter upon an evaluation of all of the church ordinances, but no sympathetic understanding of modern Christianity is possible without an appreciation of the depth of meaning which attaches to some of them. None are today so universally practiced or have come down to us in such unbroken continuity as the celebration of the Lord's Supper. Initiated at the command of the Master himself, "This do in remembrance of Me," it has gathered more and more of spiritual content through the ages. If a modern Christian is troubled by the miraculous features associated with it in particular Christian fellowships, and if he is inclined to participate in it merely as a formal rite, he would do well to examine into its richer significance. Conversely members of the older and more conservative Christian bodies who still find themselves able to enter into all the mystical meanings that have been transmitted through the centuries, could gain an enhanced sense of broad Christian unity if they

understood more fully the point of view of thoughtful moderns.

This ordinance is best viewed as symbolizing the manner in which the individual of today is able to appropriate progressively in his own life the values which have been handed down in the Christian tradition. When he partakes of the elements of the sacrament, his mind may well be fixed on those very real elements of his being which constitute our true Christian heritage. Each individual is characterized by the mysterious storehouse of memory in which are gathered all the experiences of past life; the childhood impressions, the body of fact acquired by formal education during the period of adolescence; history, biography, travel, joys and sorrows, the stern disciplines of parenthood, the spiritual influences felt both within and without the sanctuary. It is to the dusty recesses of this magic treasury that each human heart must dip for those things, both good and evil, which he imparts to his fellows. Here is the central redoubt within which each human soul is entrenched. It is the contents of this redoubt which determines the character of the individual. In the words of Jesus, "A good man out of the good treasure of his heart bringeth forth that which is good; and an evil man out of the evil treasure of his heart bringeth forth that which is evil: for of the abundance of his heart his mouth speaketh."

Each individual should search his own heart and reverently recognize the impressive fraction of the contents of his own treasury which had its origin in the

teachings of Jesus. We should not be too parsimonious in this survey. "The Kingdom of Heaven—is like unto a grain of mustard seed, which a man took, and cast into his own garden: and it grew, and became a tree: and the birds of the heaven lodged in the branches thereof." The contributions of Jesus to human society are not to be narrowly construed as the simple words which emblazon the pages of the Gospels. Whenever they have taken root in the human heart, they have grown and developed into the ideas and institutions which are the true glory of modern society. The practices attendant upon birth, marriage, and death have been purified and ennobled by the insights of Jesus. Our attitude toward other people, their sufferings and aspirations; our art and our architecture, our music and our poetry, our commerce and industry, our scientific searchings, all have experienced tangibly or intangibly, the guiding influence of the hand of the Master.

The bread and the wine of the communion ordinance are symbolic of these very real elements in the person of Jesus which have been woven like golden thread into the very fabric of every individual in a Christian community. Participation in this sacred rite should ever lead to a new determination to pursue through life this progressive enrichment of our being. Can any thoughtful person deny the practical value of such an experience?

CHAPTER XII

DETERMINISM AND FREE WILL

THE picture presented in the foregoing chapters of God and his relation to humanity is predicated on the assumption that each individual soul is master in his own house, that he possesses the power to choose between right and wrong, between that which is good and that which is evil. If he does not possess that power, the entire structure of religion collapses. It becomes a phantasy, a mirage, the shimmering image of palm trees to a traveller in the thirsty desert. Yet many sincere and thoughtful people are troubled by trends in scientific thought which seem to be inconsistent with this basic postulate. The very foundation of the modern experimental method is a belief in the "uniformity" of nature, a conviction that if an experiment, once performed, is repeated under identical conditions, the outcome of the investigation is bound to be the same. This conviction was not shared by the philosophers of ancient Greece, and one of the first obstacles to be surmounted by the discoverers of the experimental method was the profound prejudice of people in general against such an hypothesis. It has, however, been abundantly justified during three hundred years of scientific inquiry.

Such an assumption carries with it the corollary that each physical process is completely determined by the causes which lie back of it and the conditions under which it operates. This is known as the "Principle of Causality." Perhaps no basic principle has appeared to scientists to be more fundamental or more abundantly substantiated by all their experience. As science has pursued its course through the mazes of natural phenomena, and has sought to apply its methods to the study of living organisms, it has become more and more apparent that this principle must eventually come into conflict with the idea of freedom of action as envisaged for human beings. In the light of the impressive achievements being scored by the sciences of biophysics and biochemistry at the present day, there is no longer any question but that the skeleton must be dragged from the closet and subjected to full and open scrutiny. Let there be no illusions as to the crucial nature of this investigation. If this principle holds sway over human lives, no individual can be held accountable for his actions. Each act which he performs is inexorably determined by the train of causes which lie behind it. At no point can he as a sovereign soul intervene for better or for worse.

At first sight the picture is not altogether a black one, for it would seem to place in the hands of society an extraordinarily potent means for progress. If the influences which surround an individual from birth to maturity can be rendered sufficiently favorable, if all the causes which normally lead to unsocial behavior can be eliminated, the favorable progress of society would

seem to be assured. On this theory the prime requisite for a better way of life is an improved environment. True, the effect of a bad heredity would also need to be combatted, but people who have learned to put more wool on the backs of sheep and more meat on the frames of cattle should in good time be able to solve this problem.

The fallacy in such a conception for the advancement of society lies in the fact that the same principle of causality which would forbid the individual to take steps for his own good would also prevent society as a whole from taking similar measures. For society is merely an aggregate of individuals, and even though an individual might recognize undesirable features in his environment, and might be inclined to urge the institution of reforms, he would be utterly helpless to enter upon those reforms unless they flowed inexorably from the predetermining pattern of his previous existence. The only progress possible in such a society is one which was ordained from the beginning of time. Progress would thus be inevitably coupled with the existence of some sort of divine Providence. The difference between such a Providence and the Christian conception of God is fundamentally that it pictures man, no longer as God's partner, but as his slave. Is there any mystery in the fact that man at his best and noblest, man who has struggled through all the ages against tyranny and despotism, and who has come to view the most benevolent dictator as a wolf in sheep's clothing, should shrink from such a role?

The only apparent pathway of escape from this de-

terministic view of society lies in a critical examination of the Principle of Causality itself. Often in the past individuals who have revolted at its moral implications have sought to resolve the dilemma by denying its applicability to living things. The fruitfulness of the principle, universally recognized in its relationship to inanimate objects, is, however, by no means absent when application is made to life processes. Even man is in large measure the creature of his environment. Extremes of heat or cold have a depressing effect on his mental as well as his physical activities, and damage to his body, particularly the brain, is capable of decreasing or destroying altogether his fertility as a sentient human being. It is furthermore incontestable that the odds are heavily weighted against great personal achievement if he is born and reared in unfavorable social surroundings. Society would be as loath to surrender the power which it has for man's betterment by improving his environment as it would be to concede its impotence to ameliorate those conditions. The problem attains the dimensions of a dilemma only by virtue of the logical incompatibility of determinism and free will.

It is at this point that the experience of man in his study of the physical world should be of value to the social scientist and the philosopher. If the physicist is in a measure to be held accountable for the high repute in which the idea of determinism is held, he should also be heard in a statement regarding its shortcomings. If a hearing is granted, he would first of all reemphasize the fact that the achievements of deterministic science are primarily pragmatic. They have led to an under-

standing of the rules governing the use of nature's resources, but have shed little light on the basic significance of those rules. Let us imagine, for example, that the wave properties of light (interference, diffraction, and polarization), actually discovered (or properly interpreted) during the early years of the nineteenth century, through some oversight had not been recognized until man became acquainted with quantum phenomena (photoelectric effect, Compton effect, etc.). Insofar as light is concerned, the newly discovered quantum properties would have correlated perfectly with the corpuscular theory of Newton. In particular the unattenuated propagation of light through empty space would have presented no ideological difficulties, being merely the flight of corpuscles in accordance with the first law of motion. But suppose that early in the twentieth century he suddenly discovered the wave properties of interference and polarization, and was faced for the first time with the problem of visualizing the propagation of a wave without any material medium to serve as its vehicle. Would his situation not be similar to that of a biophysicist who, after generations of success in progressively applying the principles of physics and chemistry to the human body, suddenly found himself faced for the first time with the problem of consciousness and the apparent ability of an individual to make decisions for himself? The physicist has met this problem and the large category of similar problems by frankly admitting their difficulty and by adopting two rationally incompatible but complementary methods of approach. Can we justly say that the biologist is in-

hibited by sound scientific precedent from adopting a similar dual conception?

A second objection to the broad idea of causality, one which has been more widely publicized, lies in the newly discovered physical "Principle of Indetermination." The origin of this principle is so deeply embedded in the intricacies of modern physical theory that it cannot well be presented here. Its pertinence can, however, be readily appreciated. The idea of causality in natural science is best clarified by considering a specific example, that of the behavior of an inanimate particle as it moves in accordance with the laws of mechanics. These laws permit us to calculate the future position and velocity of a particle if we know its present position and velocity. They establish a causal relationship between its present and its future condition. The accuracy of the specification of its future condition is limited only by the accuracy of our present knowledge. There have never been any illusions as to the practical difficulties in the way of securing the present knowledge which is needed, but it has always been considered ideally possible to gain the required information if we were only sufficiently wise and skillful. The principle of indetermination constitutes a basic recognition of the incompatibility of a precise simultaneous knowledge of both position and velocity. Any procedure that is calculated to sharpen or render more precise the knowledge of a particle's position automatically renders less precise our knowledge of its velocity. The origin of the principle is of such a character that it seems to be associated not so much with the mechanical

limitations of the experimental investigator as with the basic conceptions of position and velocity themselves as applied to a material particle such as the electron. If the concepts themselves are of such a nature that their definition is impossible in terms of procedures which would permit their satisfactory measurement, their usefulness for predicting the future course of the particle is dubious. Thus the prize example of the application of the causality principle ceases to be convincing.

It is time now to point out that the principle of determinism, as applied to the moral realm, has one aspect of singular vulnerability. There is a popular belief that, "it is the exception which proves the rule." Any exception to the principle of determinism, however, can be crucially damaging. For, just so long as it is a law of absolute validity, the worst that can be said of it is that it is amoral; but if a single gap is detected in its armor, it assumes ominous possibilities of immorality. If an individual believes in the law, but is unable to alter his behavior in accordance with that belief, no harm is possible; but if, while still believing in the law, he actually has the power to make decisions for himself, he can choose the path of evil without any sense of moral responsibility. It is this aspect of determinism which has led to the irreconcilable hostility of socially minded people.

The logical incompatibility of determinism and free will has made it impossible in the past to effect a compromise. If, however, the nature of the physical world is such that we must of necessity approach many basic problems from two mutually incompatible but comple-

mentary viewpoints, we should not be surprised to encounter the same sort of situation in the realm of human behavior. Facing such a problem, it is clearly our duty to examine impartially and realistically the overlapping jurisdictions of the two principles. It has already been indicated that the classical mechanics of Newton and the more recently discovered quantum laws apply simultaneously and jointly in all problems. In some cases the classical mechanics is overwhelmingly the more important for understanding a phenomenon, whereas in other cases it is the quantum mechanics which dominates the more striking features of the situation. In still other cases they share responsibility on more nearly equal terms.

An excellent example is provided by the rotation of a gas molecule. According to the classical mechanics this molecule should be capable of rotating with any velocity great or small, just as the rate of revolution of a flywheel can be continuously increased from a lower to a higher value. According to the quantum mechanics, however, a molecule can only increase its rate of rotation by definitely known finite jumps. For molecules in a high temperature gas the magnitude of these jumps is so small in comparison with the rate at which the overwhelming proportion of the molecules are spinning that the alterations which take place in the rate of spin of individual molecules as a result of collisions with other molecules seem to follow quite satisfactorily the laws of classical mechanics. At low temperatures, however, the situation is radically different. The energy possessed by the overwhelming majority of the mole-

cules may be less than that which must be imparted to a molecule in order to increase its rate of spin by a single quantum, and there are cases in which most of the collisions occur without changing in any manner the spin of the molecules which take part in them. The result of such a collision is completely dominated by the quantum mechanics, and the familiar laws of Newtonian mechanics are fantastically violated. This strange picture is not just a product of the physicist's fertile imagination. It seems to be required in order to account for such mundane phenomena as specific heats.

A similar recognition of the joint operation of determinism and free will in the field of human behavior would seem to constitute the most satisfactory solution of this puzzling dilemma. May we not concede to society the power to influence the lives of human beings through its control over environment, while still leaving with the individual a large measure of control over his own destiny? May we not also admit that the minister or priest who seeks to lead the individual to a voluntary choice of good rather than evil is just as surely advancing the cause of humanity as the biologist, psychologist, or social worker who sacrificially devotes his life to exploring the means for environmental control?

CHAPTER XIII

GOOD AND EVIL

EVER since man has had sufficient mastery over his environment to permit leisure for speculation, he has been interested in his own origin and that of his surroundings. At first he could seek to reconstruct the past only on the basis of ancient tradition which had come down to him through the mists of the ages, and had to rely on his own rational powers and moral sense to test its authenticity; but with the advent of the scientific method he found himself in possession of a tool for these studies which was calculated to provide him with a sound basis for speculation. With his increased knowledge of natural law and his belief in causal relationships, he could reason not merely about the future development of the physical world but also about the steps by which it arrived at its present estate. The science of cosmogony has not yet reached the maturity of a consistent theory of the origin of the universe nor even of the solar system, but it has already blocked out certain broad features which must characterize any such theory if and when it may be devised. Thus the age of the earth and the solar system has been set with a certainty which approaches our knowledge of the age of trees as determined by ring counts.

The most impressive of several mutually consistent estimates is that provided by radioactivity. We know that all radioactive elements are the product of the progressive disintegration of uranium, and are already familiar with the exact manner and rate at which this transformation takes place. It is an atomic process subject to quantum laws. Age after age a uranium atom maintains its identity unchanged, and then suddenly, without any premonitory symptoms, it ejects a positively charged atom of helium, an alpha particle. Losing that much of its own material, its chemical identity is altered, and it becomes a new element. Like quantum processes in general, these transformations follow the laws of probability, and although we cannot tell when a particular atom will undergo such a change, we can always make a statistical estimate of the number of atoms in a sample of material which will disintegrate in a given period of time. Thus our measurements show that there is only an even chance that any particular uranium atom will be transformed in the next two billion years. Yet, because of the vastness of the number of atoms present in any small mass of material, we can detect these transformations as they occur from second to second in the tiniest specimen. The alpha particles thus formed are almost immediately neutralized by electrons to form helium molecules which tightly attach themselves by adhesion to the solid material of the parent substance. Thus through the ages the amount of uranium decreases in any ore deposit, and the amount of helium associated with it accumulates. If at any time the ore is melted, the helium, being a gas, passes off, and

the amount present in any ore that contains uranium can therefore be used as a "clock" to measure the time since last the ore was melted. Many igneous rocks contain enough uranium to make this measurement of their age feasible, and samples have been studied from many geological deposits on the earth and also from meteorites which have come from other parts of the solar system. The maximum age thus determined for meteorites is found to be the same as for terrestrial materials, about two billion years. This estimate is corroborated by a considerable amount of independent astrophysical data, and is accepted today as very close to the probable time since the earth and other members of the solar system were great balls of molten material.

What was it that happened two billion years ago to start the earth on a career which was to make it the habitation of mankind? That is the problem of the cosmogonist. How did the molten mass gradually solidify, distribute its ores, form the ocean and the dry land, give birth first to simple forms of life and then to more and more advanced forms until they culminated in the human species? That is the problem of historical geology and biology. What were the mysterious forces which guided this unfolding drama? To the reverent modern they constitute the operations of divine purpose just as truly as in earlier ages they were viewed as the handiwork of a highly personalized deity who molded both man and his surroundings like clay on a potter's wheel. Man, made in God's image, may one day learn to fill in the details of this majestic pattern of creation. In so doing he will be guilty of no impiety,

nor need we fear that he will diminish in any degree the grandeur of the conception.

At what point did man make his entrance to the stage of this great drama? We cannot answer as yet with any certainty, but that it was hundreds of thousands of years ago can scarcely be doubted. Yet during these vast ages he was feeling his way step by step toward this particular generation when, with breathtaking suddenness, he has learned to harness the mysterious resources of his planet to make himself master of space and time. Can we wonder that this has proven to be a confusing and chaotic period in human history?

This rapid survey of our cosmic background is an essential preface to any inquiry regarding the mystery of good and evil. For if man is interested in the origin of his material environment, he is similarly interested and immensely puzzled by the origin of his great adversaries, sin and evil. If he would gladly put his faith in the principle of divine beneficence, he still cannot fail to be deeply troubled by the presence of evil, and he cannot fail to wonder regarding the manner in which it intruded to mar the perfection of God's creation. These are questions which have profoundly weighed on the human spirit, and have been the subject of his speculations since the days of Job. Just as we have today no completely satisfactory theory of the origin of the physical world, so also we can make no claim to have unravelled fully this mystery of the moral order, but we can begin to recognize through the veil of human ignorance certain of its basic features.

In all the lowest forms of life the very process of

living would appear to be basically and of necessity selfish. Each little organism depends on its immediate environment for support, and can scarcely be motivated by objectives other than its own preservation and growth. If its optimum well-being is incompatible with that of other organisms because of dependence on the same sources of nourishment, conflict is bound to develop, and in such cases will eventuate in the survival of those which are organically best adapted to the conditions surrounding them. Thus we have provided a logical pattern to account for the gradual evolution of more and more complex and beautifully integrated organisms through the millions of years of geological history. Some of these steps we can follow in great detail from the records left behind in the form of fossils, but others still remain to be clarified by patiently pursued research. These studies, based on the primary insight of Darwin, have proved most fruitful in guiding man to an understanding of the procedures which he must employ if he is to adapt the plant and animal world more perfectly to his own needs.

At one point in this evolutionary process man himself emerged, and began his long and toilsome ascent to his present estate. Can we doubt that he, or his more or less remote forebears, stepped upon the stage with the heritage of complete selfishness which had served as the guiding principle of progress through the countless ages of terrestrial change? Yet if we accept in him the slightest measure of ability to determine his own destiny, he must at some time have come to recognize the necessity for choosing between two courses of action,

one for his own benefit to the detriment of his neighbor, and the other for the benefit of his neighbor to his own apparent loss. The first time that he chose to sacrifice himself for the good of another was as great a milestone in the history of humanity as the discovery of fire or the experimental method of science. True, the recognition of such a choice probably stole upon him unawares through the agency of parental love, itself a potent factor in evolution, but once established in his conscience, it constituted the germ for his developing appreciation of the moral order. Once having faced this problem in relation to his own offspring, man was destined to pursue its implications with restless persistence from family to clan, from clan to commonwealth, and from commonwealth to the whole of human society.

If we accept this evolutionary concept of the growth of human society, the simultaneous existence of good and evil in the world is recognized as a consequence of the existence of selfishness and unselfishness. Selfishness, the source of so much that is evil in the world, is seen to have served a useful and perhaps essential purpose in the process of evolution, whereas the emergence of unselfishness or social consciousness becomes the truly mysterious feature of the human picture. The contemporary effort of mankind to evolve a better society takes on its true aspect as a struggle or tension between individual avarice and social responsibility, between the heritage of the flesh and the profound insights of the spirit. It would be going too far to maintain that concern for one's own welfare has com-

pletely lost its primordial value. Such a potent force for progress would not change its character to one of sheer malevolence even in the organized community of the present day. The self-respect of a free human being has been too salutary a factor in the forward march of humanity for one to deny its value in modern society. Indeed, the great rules which have been laid down for governing man in his social relationships have clearly recognized this fact. "Do unto others as you would have others do unto you." "Love thy neighbor as thyself." "Forgive us our debts as we forgive our debtors." If an increasing concern for the welfare of one's fellows is the *sine qua non* of human progress, it can never be completely divorced from considerations of self-interest. Anything that man can do to better his own condition without harm to his neighbor must be considered as good and to the ultimate advantage of society, since it must inevitably point the way for the emulation of his fellows. Only when the good of the individual conflicts with that of society at large does moral law require its sacrifice.

Herein lies the ambiguity which is present in the concepts of right and wrong as they apply in the modern world. In a simple society, composed of only a few individuals, it is easier to appraise the effects of a given act on the welfare of one's neighbors. Theft, false-witness, covetousness, assume the aspect of obviously unsocial behavior. It is possible to draw up a code which, followed meticulously, will safeguard the rights of the group. In the huge and complexly integrated structure of modern society more and more reliance

must be placed on precise knowledge regarding the manner in which it functions and on the sensitively developed conscience of the individual. There can be no substitute for the one or the other. In a world which, while multiplying the complexity of its institutions, has so long directed its primary intelligence toward material progress, ignorance concerning the functioning of its social organization and callousness to moral principle have led to ominous doubts regarding the future. If we lack today the concrete knowledge necessary to predict with certainty the consequences attendant on any course of action, we must still seek to test our acts by the searching criterion of their probable effect on society. Man always faces such problems in the form of a choice between two alternatives. Which of the two courses of action offers the better hope for human progress? Each individual must face the decision for himself, and having reached a conclusion in the light of all his accumulated experience, he is obligated to enter upon the better way with all the courage and tenacity of his being. Only so can he perform his true duty to his fellows.

Many of the moral dilemmas which face the individual in a complex society arise because of his desire to distinguish between right and wrong on the basis of codes which are accepted as applying to more primitive forms of social organization. We must face the likelihood that the sum total of a number of individual acts, none of which run counter to the code of a primitive group, will eventuate in a situation which is to the disadvantage of a more complex society. The right to buy

and sell goods on terms of mutual satisfaction to the parties concerned might seem undeniable in a simple social order where any article could, if necessary, be produced by any individual. In a more complex organization, where few of even the most basic necessities can be provided by the unaided efforts of any single person, the possibility of monopoly or near-monopoly may make it necessary for society itself to impose drastic limitations on this fundamental right of buying and selling. Exercise of the right in a manner to the disadvantage of the community becomes morally reprehensible. It is difficult indeed to escape the conclusion that the rightness or wrongness of a practice or an institution is a function of the character of the social organization, and can be determined only with the help of a vast amount of pertinent knowledge and experience. The happiness of society today is as dependent on the possession of true wisdom as in the days of Solomon. "Happy is the man that findeth wisdom, and the man that getteth understanding. For the merchandise of it is better than the merchandise of silver, and the gain thereof than fine gold. She is more precious than rubies; and all the things thou canst desire are not to be compared unto her."

Not merely may practices which exhibit no anti-social characteristics in a primitive society develop potentialities of evil in a more complex social organization; individuals may also be required in an imperfect society to engage in enterprises which run counter to the dictates of a sensitively attuned moral consciousness. Thus war, with its obvious violation of the sanc-

tity of human life, may be an inescapable necessity for correcting evils present in the body politic, and may eventuate in the ultimate good of society. It may on occasion be viewed as the better of two alternatives, as a drastic but essential operation for the removal of intolerable obstacles from the pathway of human progress. Long ago Jesus said, "Every tree which bringeth not forth good fruit is hewn down and cast into the fire." This pruning task may be utterly repugnant to our moral sensibilities but still lie within the compass of moral obligation. Undoubtedly the most universally acceptable objective of human progress is the evolution of a world society in which true human values and moral principles need never be subordinated to the welfare of mankind as a whole. We can still look forward with the eye of faith to the day when swords can be beaten into plowshares, spears into pruning-hooks, and atomic bombs can be disassembled to provide the means for lifting the burden of physical toil from the backs of humanity.

CHAPTER XIV

PRAYER

THROUGH all of religious history man has intuitively turned to prayer as a means for implementing his belief in the influence of God over human affairs. The form taken by prayer, whether public or private, whether viewed as a petition or as an act of worship, has varied greatly both with the character of the religion and the intellectual maturity of the individual. Among primitive peoples prayer was viewed as a means for averting divine malevolence or soliciting favors by persuasion or flattery. Many people even today fail to realize that this concept of prayer is utterly inconsistent with Christian ideology, and that in its modern sense prayer has a quite different significance. A more widespread appreciation of this fact would go far toward dissipating the misunderstanding which mars the relationship between religion and secular thought.

The Christian concept of God as the embodiment of justice, righteousness, and beneficence is obviously incompatible with the notion that He can be moved by persuasion or flattery. Jesus was very explicit in this respect. "But when ye pray, use not vain repetitions as the heathen do: for they think that they shall be heard for their much speaking." The presence of the indwell-

ing spirit in the human heart makes unnecessary even the expression of our needs,—“for your Father knoweth what things ye have need of before ye ask him.” Yet Jesus himself was often found in prayer. He taught his disciples to pray, and assured them of its efficacy. “—all things, whatsoever ye shall ask in prayer, believing, ye shall receive.” That this is not just an isolated and cryptic utterance of the Master but a fundamental element in his teachings is proven by its reiteration in somewhat different form on other occasions. Thus St. John records the confident statement, spoken on the path to Gethsemane, “If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you.”

The qualifications found in these familiar texts are, however, often overlooked by those Christians who like to think of prayer as the key to all the manifold desires of the human heart. Only if our petitions are expressed with his “words abiding” in us do they fall within the meaning of this promise, and such a qualification obviously rules out certain categories of requests. We should not, for example, expect petitions to be granted which are contrary to moral law, which would in fact work to the disadvantage of society. Indeed, it is highly questionable whether we should expect petitions to be granted which require the violation of natural law. If the primary duty of man is to learn to “be at home in his Father’s house,” it would be an impious thing to ask for alterations in that dwelling when he has hardly begun to explore its noble accommodations. Just so long as pestilence could be viewed

as the visitation of an evil spirit and not a tribute paid to ignorance, one might conceivably hope for a beneficent spirit to intervene in one's behalf; but once it is recognized as the penalty for violating sanitary laws, the burden for its elimination rests squarely on human shoulders. Man must not expect divine Providence to deflect the arrow in its flight if he has for generations abused his opportunities for creating better human relations. This may seem to be an austere restriction on the power of faith, and may have been too austere for the welfare of either the church or society during the age of desperate ignorance which antedated the era of scientific knowledge. In a day, however, when man has learned to tap the hidden resources of God's creation to save untold millions from sickness, distress, and misery, the time is far past for haggling over the possibility or impossibility of sparing a few individuals by the passing of a miracle.

Many sincere Christians, who hold to the theoretical possibility of miracles, do so in view of the prominence given them in the New Testament. That Jesus devoted a large fraction of his public ministry to the care and healing of the sick is an indubitable fact. That the example set by him in this respect, coming down through the ages, has constituted one of the most important of all his contributions to humanity is equally certain; but just how far these beneficent acts overpassed the bounds of natural law, or to what extent they were misunderstood by his biographers, is more deeply veiled by time and tradition than many people are willing to recognize. The modern Christian may well delve

deeply and reverently into the wealth of spiritual truth associated with these ancient accounts without permitting them to sabotage his wholesome respect for natural law. As was said so many ages ago, "The fear of the Lord is the beginning of wisdom."

The true nature of legitimate prayer has never been better exemplified than by Jesus himself in the only prayer which he taught his disciples. Can any thoughtful person repeat the noble passages of the Lord's Prayer and doubt that, in the mind of Jesus, the primary function of prayer is the adjustment of one's own life and purposes to the will of divine Providence? For the reverent human soul the advance of mankind is like a mighty river which flows along a course set by the architect of the universe. An individual can move with it in harmony with divine purpose, and in so doing can enjoy a fruitful life; or he can struggle against the current to his own destruction. Only by the intelligent and purposeful study of the nature of his environment, supplemented by the welding and unifying effect of solitary meditation, can man learn enough about God's purposes to enable him to live in harmony with them. This solitary meditation is prayer, whether one calls it that or not. It is the specific one among our many human activities in which the things that are fundamentally good are recognized as such, and are built into character. Isolated ideas coagulate into insights, and creative accomplishments are born. It is not without significance that the Sermon on the Mount, as recorded by Luke, was preceded by a night of solitary prayer. There is no intention to infer that this colossal out-

pouring of vitally significant moral teaching had its origin in so short a period. It was the fruit of a productive lifetime. Yet the final preparation and consolidation must have taken place in a period of superlative creative activity, and no man ever appreciated better than Jesus the part which of necessity had to be played by prayerful meditation in such a task.

Approached in this manner, the words of Jesus, "Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you," take on a new and fuller meaning. They speak of no gift of necromancy which permits for the individual the realization of his shallow whims. These words are addressed rather to the generations of toiling humanity, and apply to the deepest and noblest aspirations of mankind. They constitute a divine benediction on the labor of the scientist in his laboratory as well as of the economist and sociologist in their search for a better way of life. They are the divine answer to the spirit of pessimism which would still maintain in the modern world that "That which hath been is that which shall be; and that which hath been done is that which shall be done; and there is no new thing under the sun." To the individual they bring only the assurance that he can, if he will, play a God-given part in this crusade for a better world.

Many people will feel that this is too narrow a view of the function of prayer, and it must be confessed that there is a very definite "no-man's land" between this legitimate field for prayer and the ultimate barrier which is set by physical and moral law. Jesus sought divine insight in prayer not merely for himself but also

for his disciples, and it would be misleading to infer that our present knowledge of natural law imposes a necessary barrier to the efficacy of such petitions. We know too little as yet about the mysterious spiritual relationship between one man and other members of the human family, about the influence which may be exercised by the divine spirit which dwells in all reverent hearts, to dismiss lightly the possibility that our aspirations for another's spiritual welfare will have a beneficent effect. Let no one say that such yearnings, welling deep from the best in the human heart, will of necessity fall back impotently to their source; but let no one imagine that they can serve as a substitute for concrete participation in man's major task of improving the lot of his fellows.

CHAPTER XV

ETERNAL LIFE

OF ALL the tasks that face the individual as he seeks to adjust himself to the circumstances under which he must perform his function in society, that of reconciliation to his limited span of life is most difficult. "The days of our years are three score years and ten, and if by reason of strength they be four score years, yet is their strength labor and sorrow." "So teach us to number our days, that we may apply our hearts unto wisdom." Through all his history man has sought to meet this problem by nourishing in his heart the hope for some mysterious extension of life beyond the pale of death. This hope, strongly reënforced by the Gospel accounts of the resurrection of Jesus, has ever been one of the major premises of Christianity, and occupies a prominent place in the creedal statements of the church. If belief in a creed involves only a determination to organize one's life in accordance with its implications, there can be no valid objection to accepting such a document as the Apostles' Creed without mental reservations. If, however, belief is understood as carrying with it intellectual connotations, the sincere Christian is obligated to a critical examination of the doctrine of immortality and the structure of philosophy and tradition on which it rests.

One who approaches this task from the standpoint of modern thought is very likely to conclude that its place in the logical development of Christian philosophy is not at the beginning but at the end of religious experience. Not until he has truly learned to love God and is in other respects "at home in his Father's house," not until his own personal selfishness has been well charred by the fires of a deep enthusiasm for the good of others, is he in any condition to see this problem in proper perspective. If a person has reached the stage of serene faith in a beneficent God, and has come to an understanding of his own human part in carrying out the divine purpose, he has also reached the stage of willingness to accept that part, whatever it may be. His only fear is that he may fail in carrying out the allotted task. We are told that often as a good soldier enters into battle, the fear of cowardice is far greater than the fear of death. So for the true Christian the fear of unfaithfulness may far exceed the concern for his own survival after his task on earth is done. That can well be left to the heavenly Father whom he has come to know and trust.

There is one sense in which a man so obviously possesses immortality that it requires comment. Just as the human body contains within itself the biological heritage of previous generations, so the personality sheltered within the body contains even more strikingly the impress of the creative ideas and achievements of the past. That which was of paramount importance in Jesus, the vital flood of religious and ethical insights that welled up from the depths of his being, lives today

in the souls of his followers. If this is true of the contributions of previous generations to those of us who live today, it is just as true of our own influence on future generations. Did not Jesus have this in mind when he told the woman of Samaria, "The water which I shall give him shall be in him a well of water springing up into everlasting life"? Indeed, Jesus seldom spoke of eternal life in a manner which was not susceptible of interpretation in this way. In his concluding prayer in the upper room he said, "And this is life eternal, that they might know Thee the only true God, and Jesus Christ, whom Thou has sent." The inference is clear that such knowledge of God and His own profound teachings would inevitably lead to a spiritual productivity that would pass down through time itself.

One does not have to be a great benefactor of mankind to possess immortality in this sense. Every parent passes on to his children and they to their children not merely the biological gift of flesh and bone, but much that, entering into the storehouse of memory, plays its part in all their future acts. So, whether we wish it or not, the influence of a man spreads out over the community in which he lives and on into the years which lie ahead. His own life is very truly built into the structure of human society. If the contribution is good, it becomes a part of the permanent treasure of mankind; if evil, it is subject to the corruption of moth and rust. This approach to the doctrine of immortality is peculiarly adapted to the modern mind. The man who has climbed by the path of scientific thought to the summit of a high mountain and sees the earth and the heaven

spread out before him, far from being the gross materialist of popular imagination, is as mystical an idealist as ever stepped upon the stage of human history. It is not the superb ideology which characterizes the best of Christian teaching which repels him, but the unimaginative materialism which has so often marked its expression. This conception of immortality is not a parsimonious whittling down of the traditional Christian idea of the resurrection of the flesh; it is a spiritual, as opposed to a carnal, interpretation of the same cosmic principle of divine conservation.

If we grant that man is master in his own house, it is that strange consciousness which, exercising its sovereign functions, constitutes the true essence of his personality. Here is centered the capacity and the responsibility for transforming the multitudinous contacts of daily life into something new and vital for the upbuilding of society. This creative function is much like that performed by the atom in modern physical theory. Constantly subjected to the mechanical impacts of other atoms, the energy received is ever and anon given out as a brilliant pulse of radiation, which, once emitted, may travel outward to the end of time itself. Then too, strange visitors arrive from the distant depths of infinite space, cosmic rays, which, falling on individual atoms or groups of atoms, give rise to "bursts" of such incredible energy that they can be likened only to the gigantic achievements of humanity's greatest souls. Perhaps we press the analogy too far, but reverent hearts will continue to attribute the celestial music of a Fifth Symphony or a Sermon on

the Mount to the creative interaction of a receptive human spirit and the shafts of divine Providence.

Recognition of the immortality of man as he builds himself into society does not preclude the possibility that the mysterious core of his personality, having served in this life as a channel for mediating God's bounty to others, may yet be redeployed for future tasks. Having been "faithful over a few things," who is to say that he may not one day be "ruler over many things"? Certainly not science, for the techniques which permit the chemist to distinguish gold and platinum from less noble metals somehow fall short of the analytical powers required for appraising this most precious of human possessions. No true Christian would yearn for permanent assignment to a rest area, but more often than not the individual who has felt the bubbling of living water from the depths of his being seems possessed of a serene confidence that all is well.

CHAPTER XVI

CHRISTIANITY AND THE GOOD ECONOMY

THERE have been times in the past when the eyes of Christians were focussed primarily on their hope for future life, when the present world was viewed only as a stern preparation for the happier experience to come. This attitude toward life was in part a consequence of the drab circumstances under which it had to be lived in the dark centuries which preceded the renaissance, but it was due in part also to the interpretation placed on New Testament teachings. By the early Christian church the Olivet discourse of Jesus was accepted as a literal forecast of historical events to be enacted in its own generation, culminating in the complete destruction of mankind, and the founding of a new celestial order. Despite the delay in fulfillment of this prophetic doom, large numbers of people within the church have continued to hold this view of the unregeneracy of human society, and to anticipate its end in some great cataclysm, ameliorated only by the salvation of a chosen few. It is useless to combat such a viewpoint by analogies chosen from the physical world, for cataclysms occur in physical phenomena as widely separated as the nuclear disintegration of an atom and the explosion of

a nova. The true grounds for hope in a better destiny are to be sought rather in the revelation of God's bountiful provision for mankind as found in the physical world. This, combined with the demonstration written into the pages of history of the moral and idealistic possibilities of the human species at its best, should go far toward acquitting divine Providence of such gloomy intentions.

The implication of ultimate tragedy, read into certain of the utterances of Jesus, is associated with the widely held notion of the possibility of prophetic insight into the future course of events. Such insight has often been attributed to the great Hebrew prophets, and above all to Jesus himself. It might appear on casual thought to differ little from the similar ability of science to retrace the past history of the world in the light of its present knowledge, and to look ahead to future changes in the structure of the material universe. But these claims of science are based on a knowledge of physical law and the principle of causality as it applies to material things. That a similar knowledge of moral law can be used to anticipate the consequences which will follow from a given course of action, can hardly be doubted; but the inevitability of these consequences can no longer be taken for granted if the individual is endowed with any measure of control over his own destiny. If the fate of an individual soul can be forecast, even by the omniscience of a supreme deity, the idea of free will becomes an empty fantasy, and we are back to a world of unadulterated determinism. No one can be expected to struggle toward the strait

gate if he believes that the result of that struggle is preordained. The same argument applies to society as a whole. If our social structure is destined to travel remorselessly the broad way to destruction, it can be thought of merely as a sort of robot mechanism, driven and operated by the hand of fate, with no control over its own affairs. Must we not conclude either that free will itself is an illusion, or with St. Paul that "Whether there be prophecies, they shall fail"?

Though still maintaining that he is master over his own destiny, man with his present knowledge of moral law can still recognize the probable consequences of social trends. He can predict with the confident eye of faith the ultimate destruction of a Nazi despotism just as Jeremiah could predict the downfall of a decadent Hebrew civilization. The doom pronounced by Jesus on contemporary Judean society, to be realized within the lifetime of some of his listeners, may well be viewed as a similar insight into the consequences of sin. The vision presented to his followers on the Mount of Olives of ultimate divine justice can be interpreted as a supreme flight of faith in which he beheld the triumph in human society of the principles of love and service to one another. This theory regarding the teaching of Jesus satisfies the criterion of probable fruitfulness, whereas the prophecy of doom would go far toward justifying the charge of unfruitfulness so often leveled against Christian doctrine by secular thought. Many people in the Christian church have long been aware of the incompatibility of insisting on the free will of the individual while maintaining a de-

fealist attitude toward society as a whole. No one would question the magnitude of the task involved in any thoroughgoing program of social regeneration, but the idea of denying to man a measure of success in his efforts to live at peace with his fellows is more and more clearly seen as repugnant to the modern conscience. If we accept this view of Christian philosophy, it is apparent that Christianity has an overwhelming stake in the broad welfare of contemporary society. Its own unique contribution toward that welfare is to be found in its historical emphasis on moral law and the complete interdependence of the entire human family. Recognizing, however, the profound effect of environment on individual achievement, it can scarcely divorce itself from any constructive efforts to improve our institutions. It is duty bound to emphasize the limited efficacy of such environmental controls, but it should coöperate wholeheartedly in any attempt to provide better circumstances for the development of man's spiritual powers.

One of the most extraordinary achievements of physics and engineering during the past generation has been the invention of mechanisms such as the thermionic tube for the automatic control of machines. It is entirely possible for a skilled pilot to operate a small airplane successfully without any of the elaborate stabilizing mechanisms that have been developed by the genius of modern science. A huge bomber would, however, be just a colossal death trap if all were left to the skill and intelligence of the pilot. Similarly a small primitive group in society may be expected to function

satisfactorily under the personal direction of just and capable leaders, but the huge social structures of modern times must be organized with a view toward as large a measure of automatic control as possible. This is no new discovery. The idea of a planned society, though anathema to many people, has dominated the hopes of mankind since the days of Moses and Plato. The codification of laws, the institution of courts of justice, and the evolution of constitutions can be seen as the natural efforts to replace the moral judgement of talented leaders when the size of the social unit became too great for a simpler form of control to be effective. In general the introduction of such automatic devices for keeping society on an even keel have been highly promising, and attempts at reversion to simpler controls, as in Germany under the Nazi regime, have ended uniformly in disaster. Just as the larger the airplane, the more intricate must be the control mechanisms, so it seems logical to expect that the larger and more intricate the social unit, the more complicated must be the instrumentation for its direction. Whether we would have it so or not, attempts to improve the functioning of our social organization will continue, and it is the duty of the Christian Church to bring its judgement to bear on the proposed changes, supporting them if they give promise of a better society, and exerting all its influence against them if they seem to run counter to true progress.

The ultimate objective in airplane design is the optimum combination of progress and stability. If an airplane tries to climb too fast, it stalls and goes into a

tailspin. The stabilizing mechanism must prevent this, but it must not interfere with a rate of climb that is within the capabilities of the machine. So also in the field of human relations the prime requisites are true progress and stability. The organization of society should be such as to permit the one while insuring the other also. The motive power for progress has ever been the genius and initiative of the individual. If the controls imposed upon him are severe, society may gain the deceptive security of a barrage balloon but fall prey to the elemental forces of human progress. On the other hand, the experience of history demonstrates that uncontrolled ambition on the part of individuals may and often does lead whole elements of society into disastrous tailspins. This is the problem of social organization. Can mankind solve it, with the aid of expert economists and sociologists, as well as the engineer has solved the problem of mechanical flight?

The physicist has evolved certain useful criteria for recognizing mechanical instability. It would seem that history and moral law provide similar criteria for social instability. Among these, gross inequality of opportunity, whether due to geography or caste, would appear to be the most ominous, and it would appear that any institution which obviously tends to accentuate such inequalities should be suspect as antisocial in character. Similarly any institution which tends toward an equalization of opportunity would appear to favor stability, although perhaps at the expense of progress. The balance between good and evil attendant on such equalizing influences must be arrived at by intelligent

study and careful experimentation. It is a task that will call for all the genius and devotion of which mankind is capable during the crucial years which are now upon us.

CHAPTER XVII

CHRISTIANITY AND DEMOCRACY

IN NO phase of modern life is the tension between progress and stability so apparent as in political organization. Here is to be found the framework for installing the stabilizing mechanisms for the smooth control of a progressive society. Just as man has invented the electrical and mechanical devices which are able to direct the fire of a battleship with a minimum of expense and complexity, so he must also invent the type of political organization and administrative machinery which will accomplish the desired purpose in society. It would be a mistake to suppose that he has not travelled far on the road to success in some aspects of this problem. The apprehension and segregation of criminals is provided for by the judicial and penal systems of our most progressive states in a manner to jeopardize very little the rights of law-abiding citizens, and in some cases with a fair prospect of salvaging a fraction of the debris to the future service of society. The health of progressive communities is often safeguarded by highly efficient government agencies which have been set up for the purpose, thus minimizing the toll which humanity once had to pay to recurrent plagues and pestilences.

Differences exist even among highly successful modern states in the basic form taken by political organization. These differences relate primarily to the closeness of the responsibility of the governing agencies to the people being governed. Where this responsibility is non-existent or remote, as in certain South American republics, we have to deal with a dictatorship or an oligarchy. Where the rulers are more intimately dependent on popular support, where they are elevated to their positions from time to time by the freely expressed choice of the people themselves, we have a democracy. If today the word democracy carries with it a favorable connotation in countries such as the United States and Great Britain, we should not let this fact obscure the defects and difficulties which have plagued the democratic form of organization since the days of ancient Greece.

The quality of government provided by a democracy can well surpass that which might be expected from the intellectual and cultural caliber of the electorate, but it can scarcely rise above the moral elevation of the people themselves. Free men of high morals and ideals can be expected to select as their rulers men of similar character who are at the same time noteworthy for their greater intellectual and administrative capacities, a fact that has often been the salvation of the American republic. Let, however, the vision of righteousness, justice, and altruism grow dim in a democratic society, as it did in ancient Rome, and the democratic ideal becomes a mockery and a delusion. Evil men will gain access to high places, and will bring

down to ruin the most skillfully devised structure. Much has been said, and truly, about the necessity for a high level of education in a democracy, but it is far less important than the maintenance of respect for virtue and moral integrity.

Throughout the history of this republic the solid body of its citizenry has not been composed of highly educated or widely read individuals, but just so long as they were partaking frequently of the wisdom dispensed by their village churches, they could be relied upon to meet with a clear eye and sound conscience the moral issues which arose in the exercise of their civic obligations. Let this aspect of general education lapse, and our prized democracy can no longer survive. Can any thoughtful person doubt that the cultivation of religion and the sense of moral responsibility inevitably associated with it, are prime requisites for a people that would be master of its own destiny?

The Christian church has long been aware of this Achilles' heel of democracy, and has sought to fulfill its obligation for the rearing of a God-fearing citizenry. It has not always realized the severe handicap for this task which is imposed by its extravagant compartmentation into sects which, while holding to the same fundamental Christian principles, differ in theological details. Still less has it been willing to concede that in preparation for the duties of citizenship our Jewish brethren are also performing a valiant service. The most regrettable consequence of interdenominational rivalry has been the inability to agree on a common basis for religious instruction that can properly be

presented as part of the general secular education in the public schools. The time is long past when Protestants, Catholics, and Jews should have gotten together in formulating these common elements in their teachings so vital to the continuation of a free society.

The church has been viewed by secular society as primarily a stabilizing, if not a reactionary influence. It must be confessed that it has often lacked the exuberance for progress which has so mightily characterized the human spirit in these recent generations of scientific advance. There has always been the fear that some of the new discoveries might be found in conflict with those eternal verities which it had sought at such cost to preserve. It has often toyed with the idea of a form of political organization in which it might itself hold the reins, and apply the bit, when necessary, to the galloping legions of material progress. Yet a sober appraisal of the actual situation should make it clear that its own health as well as that of secular society can best be served by a democratic way of life. If material progress erupts from the depths of the human consciousness, so also do the spiritual ideals and insights which must be depended upon to balance the new discoveries in the material realm. The church is just as dependent on the provision of opportunities for the free expression of these ideas and for their constructive application to society as are the champions of material progress. Any curbs placed on the evolution of creative ideas in the intellectual and moral world are just as much to the disadvantage of mankind as those imposed on scientific progress. Only in a democracy at its best,

where freedom of expression and the implementation of that expression are open to every member of the body politic can the optimum rate of progress be attained. Individual human beings are the only channels for the transmission of God's gifts to humanity, and the extraordinary uniqueness of individual human talent makes it highly essential that conduits shall be provided from each and every channel for emptying their contents into the great common reservoir.

CHAPTER XVIII

CHRISTIANITY AND EDUCATION

THE problem of education in a progressive democracy constitutes perhaps the greatest challenge to be met by present-day society. The primary task of modern education is that of fitting an individual to play his part in an increasingly specialized economy. A scant generation ago it was possible for a man with a broad general training to step directly from college or secondary school to a highly useful place in society. Today the knowledge required for any of the vastly specialized tasks which are now becoming the rule, calls for long and persistent preparation. Success in life demands from engineer or physicist, minister or social worker, diplomat or factory superintendent, a more and more detailed mastery of his vocation. Thus as the mounting body of knowledge makes it increasingly difficult for anyone to see clearly the broad features of the world in which he must carry on, the detailed demands placed on him by an industrial society make it constantly more difficult for him to spare the time and energy necessary to gain that breadth of understanding. Yet each individual should not merely be fitted to perform his own particular type of service for the well-being of his community; he should also be prepared to meet his civic

responsibilities as a virtuous and enlightened citizen.

Education, when applied to one of these tasks, is said to be vocational, as applied to the other, liberal. Although such a broad classification of educational objectives is useful, it is a mistake to assume that the subject matter and disciplines involved in the educational process can be sorted out and segregated into one or the other compartment. Thus science, which in popular imagination is a gigantic robot for turning the wheels of industry, should properly be considered also as a highly essential path to a proper understanding of the circumstances attendant on human existence. No one who has not travelled some distance along the pathway to an appreciation of the vast cosmic forces exhibited in the life of a spiral nebula or the explosion of an atomic bomb can feel spiritually at home in the swirl of modern life. He must ever feel on the defensive in a strange and terrifying labyrinth. Similarly the man of science who has not learned to love God and to see His image reflected in his fellow human beings, who has not learned to participate in the aesthetic and spiritual aspirations of mankind, becomes inevitably an unhappy toiler at the forge of Vulcan.

The immediate objective in the educational enterprise is in itself more complicated than is often realized. It is frequently thought of as the stocking of the mind with all the varied types of information that may later be found useful. Though this is doubtless an important function of education, it cannot be legitimately considered its sole or even its most important objective. The fraction of present-day knowledge which can be

encompassed by formal education during the limited time allotted to it is so small that our attention must be increasingly focussed on the continuing education of an individual in later life. The time devoted exclusively to it during adolescence and early manhood must be considered little more than preparatory to the vital part of the process which should extend through all of life itself. If this attitude toward education is correct, the success of school or college is to be judged, not by the list of specific topics which have been brought to the attention of the student, but by the skill he has acquired in handling this mass of material and by the intensity of the urge which has been developed for its expansion and enrichment.

No one would maintain that a language has been mastered when an adequate vocabulary has been memorized and the rules of grammar have been learned. Only when a student can think naturally and fluently without the necessity for mechanical translation into the familiar phrases of his native tongue can he use the language effectively as a key to the culture and spirit of the people who gave it birth. So, too, the primary objective in scientific training has not been achieved when a given body of fact has been memorized or even when the origin of these facts has been traced in their course of development. The goal of training in physics, for example, has been reached only when the student is in some measure a physicist, when he has learned to think of natural phenomena in terms of the instruments and quantitative measurements necessary for their description, when his mind has learned to leap naturally

and nimbly from these instrumental observations to concepts and principles, and back again by the rigorous pathway of mathematical analysis. Just as the mastery of a new language imparts to an individual a new soul, as was so admirably expressed by a highly talented Russian linguist, so the mastery of scientific technique creates in man a new spirit. It does not, as might be surmised, encase him in a prodigious mechanical framework which obscures his vision of the heavens; rather it lifts him to a new sense of power and freedom, the true heritage of mankind. It does for the individual, perhaps in a less tangible but none the less real sense, what it has done for human society since its methods have been understood.

The process for attaining this goal is not greatly different from that which is necessary in training an artist. The student must first pass through the drab apprenticeship of learning to draw, to mix his colors; and then he must sit at the feet of the masters, gradually absorbing the intangible elements that constitute the distinction between great art and mediocrity. So the would-be physicist, who has completed his novitiate at the lower level, must familiarize himself with inspired examples of scientific investigation, and little by little absorb in his own spirit the attitude and line of approach which have made these achievements possible. I do not doubt that this is the true process in every field of endeavor. If this aim of education has been reached in some measure during the formal period of school and college, if the individual has found in himself the motive power for continued progress, we need

not be too concerned that there remain large areas of knowledge still virgin to his tread. Later life will be one long continuing adventure as he takes more and more to heart the wisdom of the ages and participates in the achievements of his own generation.

This attitude toward education is particularly essential in the field of religion. Even convinced believers in the more authoritarian of religious bodies would scarcely maintain that the task of religious education has been completed with the memorizing of a catechism. Only when religious truth has been absorbed into the marrow of the soul can it perform its proper function as the guide to human actions. The traditional method of religious education consists of indoctrination in childhood both with basic principles and creedal theology, followed through life by periods of worship and mature instruction during which a sympathetic understanding is gained of the more abstract significance of ecclesiastical ideas. This method, though probably effective in a relatively simple society, dominated by an enlightened clergy, is much less satisfactory in a modern free community. Young people, indoctrinated in childhood, who thus come to associate the basic validity of religious experience with these ancient creedal expressions, are forced to pass through a period of profound readjustment when faced by the impressive body of scientific knowledge. This adjustment is a wholesome experience for many people and may eventuate in that depth of religious conviction which so happily characterizes many of our leaders in all walks of life. Such cases, however, cannot obscure

the fact that other people of equal sincerity are never able to regain a significantly religious outlook. They dissociate themselves from the continuing influence of the church, and rear their children to an exclusively secular ideology.

This difficulty might be avoided in large measure if the church would devote its program for educating its youth primarily to the basic concept of God, His beneficent relationship to mankind, the understanding of good and evil, and the obligation of love for one's fellows. Only after this primary task has been accomplished is it wise or advisable to lead the young life into the confusing maze of theological dogma. If this approach to Christian education would seem to involve a temporary neglect of those insights which constitute the pride and glory of particular denominations, the sacrifice should be accepted as a necessary contribution to the future welfare of society.

CHAPTER XIX

THE CHURCH

FOR many generations the church and synagogue have stood as the champions of righteousness, justice, and truth. If at times they have been guilty of policies which proved to the disadvantage of society, they have in general shown a willingness to alter these policies when the mistake has been recognized; and if they have in part been motivated by considerations of self-interest, it must always be remembered that they are human organizations, controlled and administered by fallible human beings. On the whole their history has been one of great benefit to mankind. The profound change in their status which has taken place in recent years must be recognized as a consequence of the increased complexity of the community to which they minister.

Throughout the middle ages and even during the early history of our own republic the church was the center of intellectual life. Universities and colleges were founded under Christian auspices with the primary purpose of providing an enlightened clergy, but with the broader hope of rearing an informed and intelligent citizenry. In every community the local church vied with the schoolhouse in ministering to the

cultural and intellectual as well as the spiritual health of the people. Largely as a consequence of denominational rivalry, the public schools have for the most part been restrained from specifically religious instruction, but only within the memory of the present generation have our endowed institutions of higher learning begun gradually to shed their religious affiliations. Thus only during the present generation has the church found itself competing on equal terms with many secular agencies for the cultivation of those values of the mind and heart which are the glory of true civilization.

For the most part this trend has been a beneficial one, for monopoly in the realm of the intellect is as disadvantageous to society as it is in the field of economics. But so is cut-throat competition. While secular education was fighting for its existence against the danger of ecclesiastical domination, it could perhaps afford to take off its gloves and exert its full power against the bondage imposed on the human spirit by narrow traditionalism. Now that the battle has been won, and the real danger would seem to lie in the ultimate loss of those great values which the church has sought to preserve, it is high time to support more fully the one agency which would seem capable of saving that moral and spiritual idealism which is the only salvation of future society. In a world which is to be blessed or cursed by man's ability to utilize the deepest resources of the physical world, it has at last become obvious that unless his enthusiasm for exploiting his physical resources is balanced by an equal devotion to the great

structure of moral law, his remaining life on this planet will, indeed, be short. If, on the other hand, he and his children and his children's children will take the necessary steps to found a civilization dedicated to the ideal of living in harmony with the great divine purpose, this human enterprise can become as fabulous a saga as ever burst from the imagination of the greatest inventive genius.

There can no longer be any question but that the engine of material progress is purring smoothly and irresistibly along under its own power. The moral forces of society, on the other hand, and the Christian church in particular, are missing fire noticeably. A part of the blame lies at the door of the church, but not all. It is the biological heritage of self-interest as it honeycombs the body politic which constitutes the major threat to society. In a pioneer economy with unlimited resources the urge of each individual to dip into that storehouse for his own profit results in the useful enrichment of all society. In the complex economy of the modern world a similar unrestrained urge on the part of those peculiarly talented and highly trained individuals on whom future progress depends, may result in tragedy.

It would be going too far to maintain that the same intelligence which makes for notable talent might not of itself go part way toward imposing a curb on unrestrained avarice, but the outcome of a spiritual struggle between intelligent foresight and self-interest is by no means a foregone conclusion. The future of humanity would today look vastly brighter if it could be

safely assumed that all of our leaders in business and finance, politics and diplomacy, science and technology, were morally undergirded by deep religious convictions. It is disturbing to speculate as to how much of the obvious idealism which has carried this country and the Soviet Union through the bitter years of world struggle is theirs by virtue of inheritance from generations of Christian civilization, and how much it will have lost its savor in another generation if so many of our young people continue to view religion as an old wives' tale.

If the rising generation of secularly trained young people is to take over the direction of world events with its moral framework firmly supported by Christian principles, the church today must carefully re-evaluate its position in society. It must relinquish once and for all its isolationism in the intellectual realm. Many people today in this republic of ours wish with all their hearts that they could draw their skirts about themselves, escape contamination from the strange new madness of our Russian brothers, from the appalling poverty of India, and pursue their own way undisturbed by the outside world. No one is so blind, however, as to believe that that possibility any longer exists. We have had to give of our cherished youth to stave off universal human destruction, and now we must give of our material wealth and scientific genius for the same end. In so doing we have learned, and must learn still further, to rub shoulders and coöperate with human beings whom we do not fully understand. So also the church today must unite its moral strength with the

material strength of secular society to usher in a better day. It must learn to speak the language of the toiling masses as they earn their daily bread, and not less significantly it must learn to speak in terms that have meaning to the growing legion of highly trained intelligent people who are destined to shape the fortunes of future human society.

Date Due

NEW BOOK

N 10 '47

FACULTY

SE 2 '48

FACULTY

JE 20 '49



Princeton Theological Seminary-Speer Library



1 1012 01010 3713